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Research Article

Note on genitalia and taxonomy of the Callidiopini from the Philippines, with description of six new species and two subspecies (Coleoptera, Cerambycidae, Cerambycinae)

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Abstract

Species of *Ceresium* and *Examnes*, Callidiopini, from the Philippines were reviewed. Six new species, *Ceresium elongatipenne* **sp. nov.**, *Ceresium holzschuhi* **sp. nov.**, *Ceresium jimcopei* **sp. nov.**, *Ceresium nigricolle* **sp. nov.**, *Ceresium quinquemaculatum* **sp. nov.**, *Ceresium crassum* **sp. nov.** and one new subspecies, *Ceresium huedepohli mindanao* **subsp. nov.**, are described. Of *Examnes*, one new subspecies, *Examnes lumawigi subrugosus* **subsp. nov.**, is described. Male genitalia of eight *Ceresium* species and three *Examnes* species, in particular their endophalli and 8th sternites, are described and illustrated in detail. Female genitalia of three *Ceresium* species are described. The genitalia and the consequences for taxonomy are discussed.

Zusammenfassung

Ceresium und *Examnes* Arten, Callidiopini, von den Philippinen wurden überprüft. 6 neue Arten, *Ceresium elongatipenne* **sp. nov.**, *Ceresium holzschuhi* **sp. nov.**, *Ceresium jimcopei* **sp. nov.**, *Ceresium nigricolle* **sp. nov.**, *Ceresium quinquemaculatum* **sp. nov.**, *Ceresium crassum* **sp. nov.** und eine neue Unterart, *Ceresium huedepohli mindanao* subspec., werden beschrieben. Von *Examnes* wird eine neue Unterart, *Examnes lumawigi subrugosus* **subsp. nov.**, beschrieben. Männliche Genitalien von acht *Ceresium* und drei *Examnes* Arten, insbesondere ihre Endophalli und 8ten Sternite, werden näher beschrieben und illustriert. Weibliche Genitalien von 3 *Ceresium* Arten werden beschrieben. Die Genitalien und die Folgerungen für die Taxonomie werden erörtert.

Key Words

Apical process, *Ceresium*, 8th sternite, endophallus, *Examnes*, genitalia, Philippines

Schlüsselwörter

Apikalkomplex, Callidiopini, *Ceresium*, Die Philippinen, 8ter Sternit, Endophallus, *Examnes*, Genitalien

Introduction

The Callidiopini, Lacordaire, 1869, is a large tribe, mainly distributed in the Oriental and Austro-Asian Regions. While it is well explored with more than 400 hitherto described species in 68 genera, the knowledge of their genitalia has remained rudimentary for a long time. In recent years, however, many of their genitalia were newly

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described, in particular those of species belonging to the genera *Ceresium* Newman, 1842, *Examnes* Pascoe, 1869, *Oxymagis* Pascoe, 1866, *Tethionea* Pascoe, 1869, and *Falsoibidion* Pic, 1922. (Yokoi 2015, 2019, 2021a, 2021b, 2022; Yokoi et al. 2016, 2019, 2021).

In the course of these observations, a few interesting aspects of their genitalia were disclosed. First, their 8th sternites are highly diversified in morphology. They are characteristic of each species. Second, their endophalli are even more significant for the taxonomy. With the exception of those *Falsoibidion* species, the endophalli are each furnished with a strongly sclerotized apical process surrounding the ejaculatory duct. These processes are extraordinarily intricate in structure, highly diversified, and characteristic of each species. In addition, the surface structure of the endophallic tube has proved to be another essential species indicator. Comparative observation of genitalia has thus become indispensable for the taxonomy of these genera and species. Therefore, investigation of genitalia should be further extended and intensified, involving more species and genera of the Callidiopini.

Ceresium as a genus was introduced by Newman 1942, with the descriptions of four species from the Philippines. Since then, a great number of species have been added to the genus. It is now by far the largest and most widely distributed genus of the Callidiopini. At present, it consists of more than 180 taxa in three subgenera, distributed in the Oriental and Austro-Asian Regions, spreading also into the insular and coastal regions of the Indian Ocean.

In contrast, the *Ceresium* fauna of the Philippines, the original locality of the genus, remained less explored for a long time, with only one species described in one-and-a-half centuries (Aurivillius 1927). More recently, however, Hüdepohl described the local fauna and included a diagnostic key, covering the eight species known at the time (1990, one later synonymized). In all, one new species was described and four new distributions were recorded in his works (1990, 1994). In the last 10 years, one new species was described by Vives (2013) and five more by the author of this publication (Yokoi 2019). Currently, the *Ceresium* fauna of the Philippines consists of 14 taxa, most of them are endemic, often with peculiar morphologies.

In this publication, six new species and one new subspecies of *Ceresium* are described from the Philippines. They include *Ceresium elongatipenne* sp. nov., *Ceresium holzschuhi* sp. nov., *Ceresium jimcopei* sp. nov., *Ceresium nigricolle* sp. nov., *Ceresium quinquemaculatum* sp. nov., *Ceresium crassum* sp. nov. and *Ceresium huedepohli mindanao* subsp. nov.

As to the male genitalia of *Ceresium*, 28 species from the Oriental and Austro-Asian Regions have been previously described (Yokoi 2015, 2019, 2021a, 2021b, 2022; Yokoi et al. 2019). This figure includes five species from the Philippines (Yokoi 2019). However, it is insufficient for the taxonomy of the local *Ceresium* species. Genitalia of more Philippine species should be investigated for the purpose of comparisons with other species of the genus. In the following, male genitalia of the first four of the six new species, along with those of the new subspecies, are described. For comparative observations, those of three known species, *Ceresium aethiops* Newman,1842, *Ceresium lingafelteri* Vives, 2013, and *Ceresium longicorne* Pic, 1926, all from the Philippines, are additionally described.

The female genitalia are less indicative than those of the males. Most of their parts are not sclerotized and thus susceptible to deformation before and during the examination. However, sclerotized parts as 8th and 9th sternites and tergites as well as spermathecae and vaginal plates often reveal characteristics typical of the species, providing us with useful keys for the taxonomy. In this publication, female genitalia of *Ceresium elongatipenne* sp. nov., *Ceresium quinquemaculatum* sp. nov. and *Ceresium crassum* sp. nov. are described. For comparison, those of *Ceresium furtivum* Pascoe, 1869, and *Ceresium striatocolle* Holzschuh, 2011, are additionally illustrated.

Examnes Pascoe, 1869, is a much smaller genus than *Ceresium* and less widely distributed, consisting of 13 hitherto described species from the Oriental and Austro-Asian Regions. Four species of this genus were already examined as to male genitalia (Yokoi et. al. 2016, 2019). Of three known species from the Philippines, genitalia of only one species, *Examnes philippensis* Newman, 1842, was described in part. In the following, the male genitalia of *Examnes lumawigi subrugosus* subsp. nov., *Examnes kawakamii* Yokoi et al., 2019 (new record from the Philippines) as well as *Examnes philippensis* Newman are comprehensively described or supplemented.

The observations of genitalia beyond the individual descriptions are discussed at the end, together with their consequences for taxonomy.

Material and methods

The specimens examined were either directly compared to the holotypes or to their original descriptions and photographs.

For the examination of genitalia, the specimens were first softened, then submerged in KOH solution for 12 hours and subsequently cleansed in water. They were photographed by a digital camera with a macro lens. Serial photos were stacked onto one image. Drawings were made by Adobe Illustrator. Median lobe, tegmen, 8th sternite and tergite as well as the endophallus were observed for each male specimen. In addition, when relevant, 9th sternites or tergites were described. In the previous publications of the author, the apical sclerotization of the endophallus was referred to as “ejaculatory duct complex”. In this publication, it is instead referred to as “apical process of endophallus.” In general, the side on which the ejaculatory duct or its protective capsule is located, is referred to as “dorsal”.

For genital analysis, males are preferred. Where male specimens were not available or a female is additionally available, female genitalia were examined, in particular their 8th and 9th sternites and tergites, spermathecae,

spermathecal ducts and bursae copulatrix. Measurements were taken with an ocular micrometer.

The abbreviations used in the descriptions are as follows: **TL** – total length (from apical margin of clypeus to abdominal apex); **HW** – head width across eyes; **PL** – length of pronotum; **PW** – maximum width of pronotum; **PA** – apical width of pronotum; **PB** – basal width of pronotum; **EL** – length of elytra; **EW** – humeral width of elytra. In addition to these commonly applied ratios, EL/TL is also indicated for numeric comparisons of elytral length in relation to body.

Data on the collection labels are below reprinted verbatim.

Holotypes and paratypes of the species described in this publication are preserved in the Senckenberg Museum, Frankfurt.

Acronyms of scientific collections

CCH Collection Carolus Holzschuh, Villach, Austria.
CJC Collection Jim Cope, San Jose, California, USA.
CHM Collection Hiroshi Makihara, Chiba, Japan.
CTN Collection Tatsuya Niisato, Tokyo, Japan.
CNO Collection Nobuo Ohbayashi, Kanagawa, Japan.
CYY Collection Yaheita Yokoi, Ratingen, Germany.
SMF Senckenberg Museum, Frankfurt am Main, Germany.

Results

Descriptions of species

***Ceresium elongatipenne* sp. nov.**

https://zoobank.org/477B818F-1D31-421C-AC2F-D07AE4F03929

Figs 1A–I, 2A, B, 17A–L, 28A, B

Type material. ***Holotype*** ♂ (SMF)**:** "Imagun, Luzon "; "Senckenberg Museum, Frankfurt".

Paratype ♀ (SMF)**:** ditto.

Etymology. The name of this species refers to its elongated elytra.

Diagnosis. Slender. Colour testaceous. Elytra parallel-sided, distinctly elongated. Pronotal disc densely punctured. Blade of 8th sternite extremely short. 8th tergite strongly elongated.

Measurements. Holotype ♂: TL = 10.8 mm; EL/TL = 0.73; EL/EW = 3.27; HW/PW = 0.97; PL/PW = 1.06; PA/PW = 0.73; PB/PW = 0.88. Paratype ♀: TL = 10.8 mm; EL/TL = 0.74; EL/EW = 3.30; HW/PW = 1.0; PL/PW = 1.06; PA/PW = 0.76; PB/PW = 0.92.

Description of holotype male. Colour universally testaceous, thorax slightly darker; setae pale yellowish to whitish.

Head nearly as broad as pronotum, glossy; punctures dense and regular; setae stout, curved, disorderly, pointing in different directions; median furrow from frons to occiput. Frons longer than broad; rather flattened; not steep; apex nearly as broad as base; sides moderately emarginated. Vertex moderately concave. Occiput finely sub-rugose. Eyes separated from one another by 5/9 the width of occiput or 3/2 that of the upper eye-lobes. Antennal supports broad, flattened, impunctate, each sub-encircled by an arcuate row of diminutive setiferous punctures. Antennae reaching elytral apices at antennomere X. Length of antennomeres relative to scape: III = 1.0; IV = 0.95; V = 1.4; VI = 1.25; VII = 1.25; VIII = 1.15; IX = 1.04; X = 0.95; XI = 1.05. Scapes sub-arcuate and strongly clavate.

Pronotum (Fig. 1C) shiny, a little longer than broad; broadest at apical 1/3; apex narrower than base; punctures dense and regular; setae around the disc stout, curved, sub-erect, mostly pointing to the middle; setae on disc finer. Disc bordered by an irregular, glabrous costa on each side; median stripe broad. Sides evenly arcuate on apical 3/4, constricted at basal 1/4; surface uneven with irregular elevations; each with several additional longer erect setae.

Scutellum sub-circular; fringed by diminutive setae.

Elytra elongated in relation to the body; sub-parallel-sided; apices separately rounded; punctures regular, dense, setiferous; setae on disc finer than the others.

Legs rather slender; femora clavate from base.

Venter (Fig. 1B, D): Setae in middle sparse, short, curved, disorderly; denser, longer, recumbent and aligned towards sides. Prosternum convex, rounded; the middle with micro-punctures or finely rugose; with several large punctures near each latero-apical corner. Prosternal process narrow, constricted; apex truncated. Mesoventrite saddle-shaped; moderately elevated toward the process; the middle finely punctured. Mesoventral process broad, flattened, sparsely setose; sides deeply emarginated; apex bi-lobed with sub-W-formed apical margin. Metaventrite glossy; apically slightly dilated; impressed along the median furrow; regularly punctured on both sides of the impression. Abdomen glossy; punctures sparse and fine; sternites 3–5 widely hairless in middle; 6–7 sparsely setose; 7th sternite as long as the preceding; apex arcuate. 7th tergite well rounded; the apical margin fringed with long setae (Fig. 17L). Male genitalia (Figs 1E–I, 17A–L): Median lobe about 3/8 the length of abdomen; elongated-bullet-shaped in dorsal view; moderately arcuate in lateral view; dorsal plate dehiscent in basal 2/3; ventral plate similarly long, dehiscent in basal 7/8, with apex strongly narrowed and produced (Fig. 17C). Tegmen more than 9/10 as long as median lobe; narrow in dorsal view; moderately bi-sinuate in lateral view. Parameres nearly half the length of tegmen; apical 3/10 bi-lobed; lobes each clothed with short to long apical setae. Apical process of endophallus (Figs 1I, 17D–F) about 3/10 as long as median lobe; apical sclerite triangularly projected in dorsal view; thick, curved downward in lateral view; median sclerite with a prominent, horn-shaped ventro-basal projection and a smaller, thinner dorso-apical projection; both lateral sclerites posteriorly extended in the shape of median struts of median lobe. Blade of 8th sternite short, sub-cotyledonary; apex doubly deeply emarginated; base deeply emarginated on each side of the middle; apex and sides fringed with medium to short hairs; peduncle a little

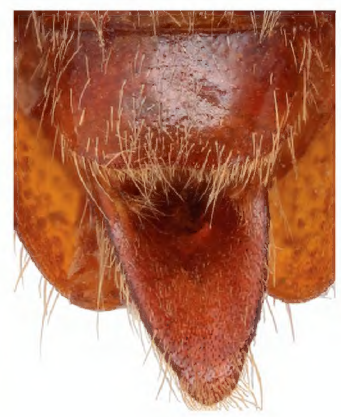
1A

1B

1C

1D

1E



1F

1G

1H

1I

Figure 1. A–I. *Ceresium elongatipenne* sp. nov. Holotype male. **A.** Habitus, dorsal view; **B.** Ditto, ventral; **C.** Pronotum; **D.** Prosternum and mesoventrite; **E.** 8th sternite, ventral view; **F.** 7th sternite and 8th tergite, ventral view; **G.** 8th sternite and tergite, ventral view; **H.** Median lobe and endophallus, lateral view; **I.** Apical process of endophallus, dorsal view.

longer than blade. 8th tergite elongated-bell-shaped, exceptionally large and long, fringed with medium to short setae; additional setae near sides and apex shorter.

Description of the female paratype (Sexual dimorphism). Antennae reaching elytral apices at the middle of antennomere XI. Abdomen more voluminous than in male.

Female genitalia (Figs 2B, 28A, B): 8th sternite weakly dilated towards apex; peduncle more than three times as long as blade. 8th tergite sub-squarish; latero-basal corners acute; both sternite and tergite fringed with several long apical setae. 9th sternite slender; coxite more than 3/5 as long as paraproct; styli each furnished with a few setae. Vaginal

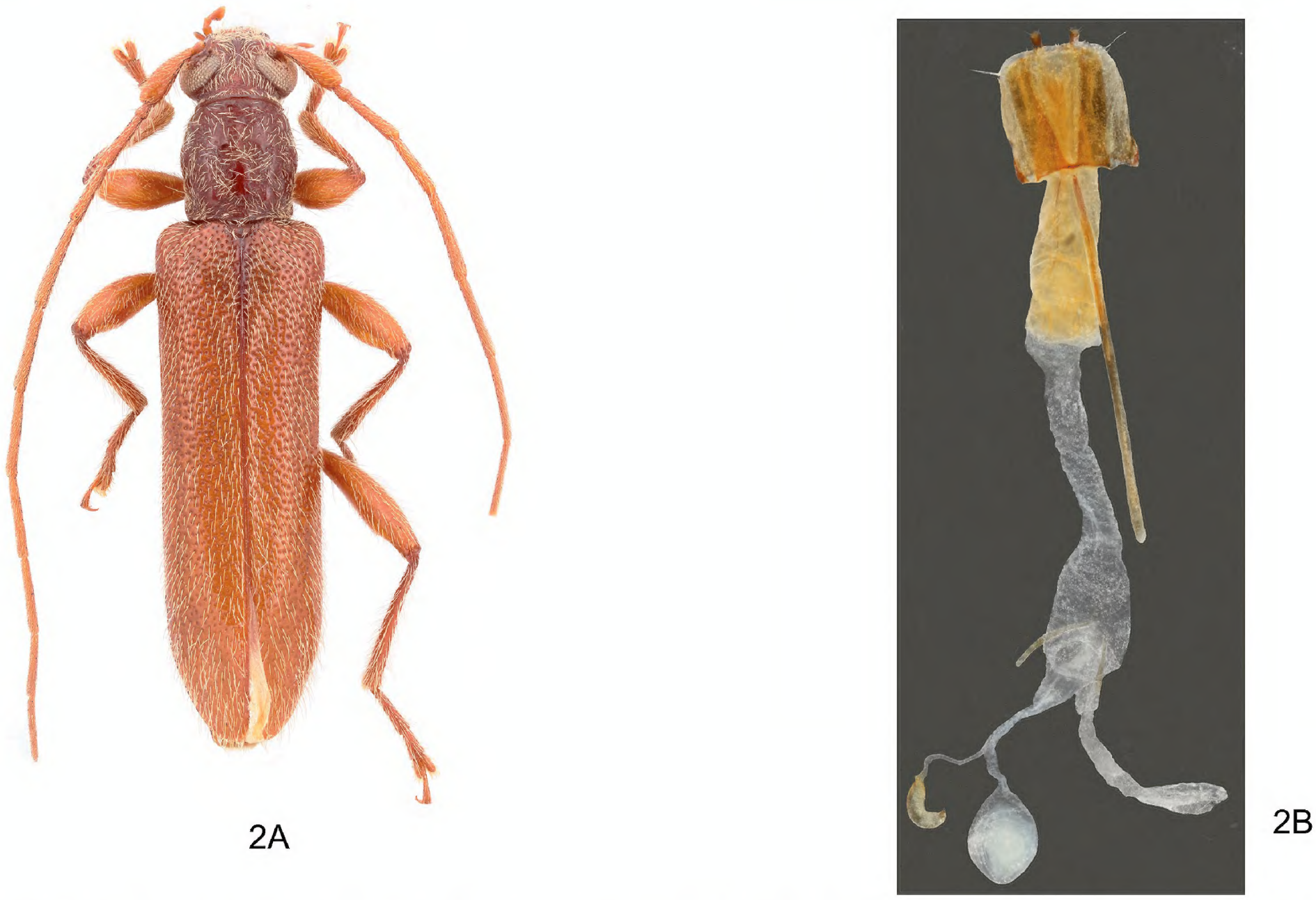


Figure 2. A, B. *Ceresium elongatipenne* sp. nov. Paratype female. **A.** Habitus, dorsal view; **B.** Genitalia, from top: 8th sternite; 9th sternite (part); vagina with vaginal plates; bottom from left: spermatheca; bursa copulatrix; median oviduct.

plates short. Bursa copulatrix oval; connected to the apical vagina by a long tube. Spermatheca kidney-shaped, connected to apical vagina by a long winding duct.

Distribution. Luzon, Philippines.

Comparative notes. This new species can be distinguished from all congeneric species by the parallel-sided, strongly elongated elytra. They are not only proportionally elongated in themselves, but also in relation to body, with EL/TL = 0.73–0.74. As to male genitalia, the structures of its 8th sternite and tergite are, as above described, exceptional in *Ceresium*. Apical process of its endophallus is elaborate and characteristic of the species.

Ceresium holzschuhi sp. nov.

https://zoobank.org/C7D8207E-F1AD-43A3-87EE-9B58B2667296

Figs 3A–F, 18A–K

Type material. ***Holotype*** ♂ (SMF)**:** "Philippines, 1600m;" "Mindanao, 30Km W. of Marang," "28. - 30. Dec. 1990," "Rolm lgt," "Coll. Lgt. C. Holzschuh 2015," (former CCH).

Etymology. The name of this species is dedicated to Mr. Carolus Holzschuh of Villach, Austria. The holotype belonged to his private collection.

Diagnosis. Slender. Colour fulvus to testaceous. Elytra elongated, apically tapering. Punctures on pronotal disc deep and regular. Apical middle of 8th sternite elevated, distinctly setose.

Measurements. Holotype ♂: TL = 10.5 mm; EL/TL = 0.70; EL/EW = 3.25; HW/PW = 0.93; PL/PW = 1.12; PA/PW = 0.74; PB/PW = 0.94.

Description. Colour fulvus; thorax and head testaceous; abdomen reddish dark yellow; setae pale yellowish to whitish.

Head narrower than pronotum; glossy; punctures dense and regular; setae dense, stout, curved, recumbent; median furrow stretching from frons to vertex. Frons transverse, rather flattened, not steep; apex as broad as base; sides moderately emarginated. Vertex moderately concave. Occiput finely sub-rugose. Eyes separated from one another by half the width of occiput or 11/5 that of the upper eye-lobes. Antennal supports flattened; each sub-encircled by an arcuate row of diminutive setiferous punctures. Antennae surpassing the pronotal base at antennomere IV. Length of antennomeres relative to scape: III = 0.95; IV = 0.9; V = 1.25; VI = 1.25. Scape sub-arcuate and strongly clavate. Remark: Antennae damaged; antennomeres VII–XI missing.

Pronotum (Fig. 3C) longer than broad; apex narrower than base. Setae sparse, fine on disc; dense, adpressed on both sides of disc; additional several longer erect setae on sides. Punctures on disc regular, large, deep; median stripe short. Sides moderately arcuate, weakly constricted near basal 1/5; surface uneven with irregular elevations; punctures on sides dense, deep and coarse.

Scutellum bell-shaped; with dense pubescence.

3A

3B

3C

3D

3E

3F

Figure 3. A–F. *Ceresium holzschuhi* sp. nov. Holotype male. **A.** Habitus, dorsal view; **B.** Ditto, ventral; **C.** Head and pronotum; **D.** Prosternum and mesoventrite; **E.** 8th sternite with 8th tergite in the background, latero-ventral view; **F.** Median lobe and endophallus with apical process.

Elytra elongated, sides distinctly tapering toward apices; apices separately rounded; punctures deep, regular, setiferous; setae curved and adpressed.

Legs slender, femora clavate from base.

Venter (Fig. 3B, D): Prosternum convex, rounded; punctures large, deep, regular, setiferous; setae curved, recumbent, pointing to the direction of the process. Prosternal process narrow, constricted; apex truncated. Mesoventrite saddle-shaped; moderately elevated toward the process; punctures sparse and shallow; setae short and fine. Mesoventral process broad, flattened; punctures obtuse; setae sparse; sides emarginated; apex bi-lobed with sub-W-formed apical margin. Metaventrite glossy, apically slightly dilated, impressed along the median furrow; punctures on both sides of the impression obtuse. Abdomen glossy, nearly impunctate; setae in the middle sparse, medium to short, curved, recumbent; setae near sides denser; 7th sternite trapezoidal; apex truncated.

Male genitalia (Figs 3E, F, 18A–K): Median lobe about 1/3 the length of abdomen; fusiform in dorsal view; slender and arcuate in lateral view; dorsal plate dehiscent in basal 3/5; ventral plate similarly long, dehiscent in basal 4/5, apically narrowed, with sub-acute apex. Tegmen nearly 3/4 as long as median lobe; moderately arcuate in lateral view. Parameres about 9/20 the length of tegmen; apical 1/5 bi-lobed; lobes broad, each fringed with a few long and several short apical setae. Apical process of endophallus as Figs 3F, 18D–F; less than 3/10 the length of median lobe; sub-monolithic; the middle thick in lateral view, with a prominent, horn-shaped dorso-apical projection; base spatulate, thick; both sides projected downward, loosely connected to a 4-armed, curved-spatulate apical appendage. Blade of 8th sternite as Figs 3E, 18J–K: transverse; apex shallowly emarginated in a bi-sinuate line; apical middle distinctly elevated, clothed with a cluster of long, erect, well-aligned setae stretching forward; hairs on and near sides aligned, pointing to the elevated middle; peduncle shorter than blade. 8th tergite sub-linguate; apex and sides fringed with setae of various lengths.

Distribution. Mindanao, Philippines.

Comparative notes. This new species can be compared to *Ceresium virens* Heller, 1914, from Papua New Guinea. Both species are similar in body structure, in particular regarding their characteristic elongated, tapering elytra. The new species can be easily distinguished by the surface of pronotum and elytra: the punctures are regular and deep, whereas they are irregularly aligned and of varying depth in *C. virens*. In addition, the legs and antennae of the latter are longer and more slender. The new species shares also a few external characteristics with the above described *C. elongatipenne* sp. nov. Meso-and metathorax, abdomen and legs are essentially similar. In contrast, they obviously differ from each other by the structure and surface of the prothorax. The distinctions in genitalia are even more evident. The endophallus, apical process in particular, of *C. holzschuhi* is rather reminiscent of *Ceresium sugiartoi* Yokoi, Makihara & Noerdjito, 2019, or to those of *Examnes* species (See Discussion). The elevation in the apical middle of its 8th sternite with a cluster of aligned, erect setae thereupon is remarkable, a new observation in the genus.

Ceresium jimcopei sp. nov.

https://zoobank.org/DDFBB3CA-1826-4E08-B3FB-5C2B91639467

Figs 4A–F, 19A–K

Type material. ***Holotype*** ♂ (SMF)**:** "Phil., N. Luzon"; "Barlig, Mt. Prov."; " I-2016"; "Cope Collection". (former CJC).

Etymology. The holotype could be examined by courtesy of Mr. Jim Cope, California, USA. The name of this species is dedicated to him.

Diagnosis. Colour testaceous. Pronotum resembles that of *Ceresium vestigiale* Pascoe, 1866. Body, legs and antennae slenderer; antennae longer. Apical process of endophallus exceptionally large, in baculi-form; surface of endophallic tube scaly in part.

Measurements. Holotype ♂: TL = 10.0 mm; EL/TL = 0.65; EL/EW = 2.90; HW/PW = 0.90; PL/PW = 1.04; PA/PW = 0.66; PB/PW = 0.88.

Description. Colour testaceous; setae pale yellowish to whitish.

Head lightly narrower than pronotum, glossy; puncture dense, large, regular, setiferous; setae stout, curved, suberect, disorderly. Frons transverse, not steep; the middle moderately elevated, glossy, obtusely punctate. Vertex concave; with a shallow median furrow; setae pointing to antennal supports. Punctures on occiput obtuse; setae adpressed, pointing to vertex. Eyes separated from one another by half the width of occiput or twice that of the upper eye-lobes. Antennal supports broad, flattened, glabrous, nitid, though each sub-encircled by an arcuate row of diminutive setiferous punctures. Antennae reaching elytral apices by 9th article. Length of antennomeres relative to scape. III = 1.0; IV = 0.85; V = 0.80; VI = 1.1; VII = 1.05; VIII = 1.05; IX = 1.05; X = 0.9; XI = 0.80. Scapes sub-arcuate and moderately clavate.

Pronotum slightly longer than broad; apical half inflated; constricted just before apex; apex thus narrower than base. Puncture on disc dense, regular, setiferous; setae curved, pointing to the middle; median stripe broad, nearly half the length of pronotum. Sides each uneven with irregular elevations, of which the one near the latero-apical corner is the largest.

Scutellum sub-circular, with several short setae.

Elytra gradually tapering from humeri; apices separately rounded; disc well-flattened; punctures dense, regular, setiferous, attenuating towards apices; setae stout, curved and recumbent, though short and fine on disc.

Legs rather slender; femora clavate from base.

Venter (Fig. 4B, D): Prosternum impressed in middle, concave in profile; punctures in the middle dense, large, coarse, setiferous; those near sides sparse, small and deep; setae short, sparse and disorderly. Prosternal process rather broad; apically expanded and curved downward; apex truncated. Mesoventrite saddle-shaped; setae

4A

4B

4D

4C

4E

4F

Figure 4. A–F. *Ceresium jimcopei* sp. nov. Holotype male. **A.** Habitus, dorsal view; **B.** Ditto, ventral view; **C.** Head and pronotum; **D.** Prosternum and mesoventrite; **E.** Endophallus, part, surface; **F.** Median lobe and endophallus with apical process, ventral view.

in middle sparse, short, disorderly; those on sides dense, adpressed; punctures near the process large and shallow. Mesoventral process broad, well-bordered; with several large setiferous punctures; apex widely, deeply emarginated. Metaventrite glossy; punctures in middle sparse and diminutive; setae in middle short and sparse; those on sides dense, adpressed. Abdomen glossy; widely hairless in middle. 7th sternite trapezoidal; apex truncated.

Male genitalia (Figs 4E, F, 19A–K): Median lobe about 7/20 the length of abdomen; fusiform in dorsal view; moderately arcuate in lateral view; dorsal plate dehiscent in basal 2/3; ventral plate a little longer than the dorsal, dehiscent in basal 7/8, apically narrowed to a sub-acute tooth. Tegmen nearly 7/8 as long as median lobe; strongly curved in lateral view. Parameres 9/20 the length of tegmen; sides tapering in a sub-sinuate line toward apices; apical 3/10 bilobed; lobes each evenly tapering, with short to long apical setae. Apical process of endophallus (Figs 4F, 19D–F) exceptionally large, 11/20 as long as median lobe; in baculi-form, stout, weakly arcuate in profile; apex with three kinds of projections; prominent horn-shaped dorsal one, shorter spatulate ventral one and a pair of blunt, wing-like lateral ones. Surface of endophallus scaly or reticulate in part (Fig. 4E). Blade of 8th sternite transverse; sides apically narrowed; apex widely emarginated in a shallow bi-sinuate line; apex and sides fringed with medium to long setae; peduncle slightly shorter than blade. 8th tergite linguate in outline; fringed with medium to long setae.

Distribution. Luzon, Philippines.

Comparative notes. This new species can be distinguished from the other known species by the combination of its smaller size, universally testaceous colour, slender antennae, apically inflated pronotum and regular puncture on disc. The structure of, and integument on, pronotum can be compared to those of *C. vestigiale* from Borneo. The new species differs, however, in other external characteristics. Further, its male genitalia is clearly distinct. The apical process of its endophallus, as described above, is indeed exceptional. This type of the process has not been observed before in the genus *Ceresium*. At the same time, the surface of its endophallus is also atypical. The endophallus of this species is remarkable.

Ceresium huedepohli mindanao subsp. nov.

https://zoobank.org/9C6CFE59-D9F0-404F-9BF7-3161D29C1DA1

Figs 5A–G, 20A–J

Ceresium huedepohli Yokoi, 2019: 23. Type locality: "Espana, Sibuyan Is., Romblon, Philippines".

Type material. ***Holotype*** ♂ (SMF)**:** "Phil I., Mindanao"; "Kidapawan S."; "Cotabato I-2015". (former CJC).

Etymology. The name of this subspecies refers to its distribution.

Measurements. Holotype ♂: TL = 8.8 mm; EL/TL = 0.70; EL/EW = 3.13; HW/PW = 1.04; PL/PW = 1.17; PA/PW = 0.62; PB/PW = 0.80.

Comparative description of male genitalia (Figs 5F, G, 20A–J). Median lobe and tegmen similar to those of the nominotypical *Ceresium huedepohli* Yokoi. Apical process of endophallus as Figs 5G, 20D–F; broader in dorsal view; in profile even more strongly curved downward; apical sclerite projected forward in sub-sagitiform, instead of dehiscent. 8th sternite deeply in V-form emarginated on apex, instead of thinned in the apical middle.

Distribution. Mindanao, Philippines.

Comparative notes. This subspecies differs from the nominotype in a few external characteristics. Its elytra are longer with EL/TL = 0.70, while antennae are shorter. The differences in male genitalia are more evident. Even though they are basically of similar design, a few essential deviations can be identified as above. The new subspecies, from Mindanao, is geographically separated from the nominotype from Sibuyan Island.

Ceresium nigricolle sp. nov.

https://zoobank.org/49EA49E1-C99C-49DF-9C5F-D46CED1CB9FA

Figs 6A–G, 21A–C

Type material. ***Holotype*** ♂ (SMF)**:** "Philippines, N. Luzon, Hung-Duan"; "Ifugaon V-2018"; "Cope Collection". (former CJC).

Etymology. The name of this species refers to the colour of thorax.

Diagnosis. Bi-coloured, head and prothorax dark, remainder of the body yellowish-brown. Pronotum rounded; disc encircled by a ring of whitish pubescence. Antennae slender and long.

Measurements. Holotype ♂: TL = 15.4 mm; EL/TL = 0.63; EL/EW = 2.94; HW/PW = 0.86; PL/PW = 1.04; PA/PW = 0.65; PB/PW = 0.90.

Description. Body yellowish-brown; head, thorax and apices of femora black; setae whitish.

Head narrower than pronotum; glossy; punctures dense, setiferous; setae stout, curved, disorderly, pointing to different directions. Frons transverse, not steep, emarginated on sides, elevated in middle, median furrow short. Vertex broad, moderately concave. Occiput finely sub-rugose; setae pointing to vertex. Eyes separated from one another by 2/5 the width of occiput or 5/3 of the upper eye-lobes; lower lobes densely fringed with short, sub-erect setae. Antennal supports broad, flattened, sub-nitid, though each sub-encircled by an arcuate row of diminutive setiferous punctures. Antennae surpassing elytral apices by 10th article. Length of antennomeres relative to scape: III = 0.84; IV = 0.80; V = 1.2; VI = 1.25; VII = 1.25; VIII = 1.2; IX = 1.13; X = 1.0; XI = 1.1. Scapes weakly clavate, slightly arcuate.

Pronotum slightly longer than broad; sub-spherical with sides almost evenly arcuate. Disc almost encircled by a ring of thick pubescence; bordered by a nitid, irregularly arcuate costa on each side; punctures dense, regular; setae short, curved; pointing to the middle; median stripe

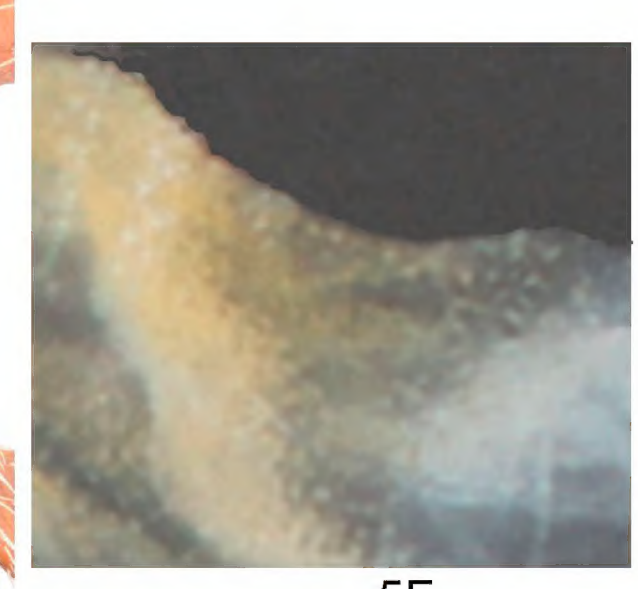
5A

5B

5C

5D

5E



5F

5G

Figure 5. A–G. *Ceresium huedepohli mindanao* subsp. nov. Holotype male. **A.** Habitus, dorsal view; **B.** Ditto, ventral; **C.** Head and pronotum; **D.** Ditto, latero-dorsal view; **E.** Prosternum and mesoventrite; **F.** Endophallus, part, surface; **G.** Endophallus with apical process.

6A

6B

6C

6D

6E

6F

6G

Figure 6. A–G. *Ceresium nigricolle* sp. nov. Holotype male. **A.** Habitus, dorsal view; **B.** Head and pronotum, dorsal view; **C.** Pronotal side; **D.** Prosternum; **E.** Meso- and metaventrite; **F.** Abdomen; **G.** Protibia.

broad, about 3/10 the length of pronotum. Sides with a protuberance near each apical corner; punctures dense, variable; setae sparse, short, curved; (Fig. 6B, C).

Scutellum bell-shaped, pubescent.

Elytra tapering from humeri toward apices; apices separately sub-rounded. Punctures rather small, attenuating towards apices; setiferous. Setae short, stout and curved. Punctures and setae on disc finer.

Legs short and stout. Femora clavate from base on. Tibiae keeled (Fig. 6G).

Venter (Fig. 6D–F): Prosternum convex, rounded; the middle apically bordered by a broad, glabrous, hor-

izontal costa; punctures deep and regular; setae curved; sides pubescent. Prosternal process narrow, constricted, apically expanded; apex truncated. Mesoventrite saddle-shaped; with several large, deep punctures in middle; setae sparse in middle, dense on the process, pubescent near sides. Mesoventral process broad; punctures obtuse; sides weakly and apex deeply emarginated. Metaventrite well rounded; glabrous along the median furrow; thickly pubescent otherwise. Abdomen glossy; punctures obtuse; setae recumbent, sparse in middle, denser on sides. 7th sternite trapezoidal; apex widely, weakly emarginated.

Male external genitalia (Fig. 21A–C): Blade of 8th sternite cotyledonary, well-rounded at corners; regularly fringed with long apical and lateral hairs; apex emarginated in a sinuate line; apical middle with additional short, curved setae; peduncle a little shorter than blade. 8th tergite broadly linguate; apex feebly emarginated; sides and apex fringed with medium to long setae; the apical middle impressed, punctate, with short, curved setae stretching forward; additional setae elsewhere in the apical half pointing to the middle. (Remark: abdomen is damaged, parts of genitalia missing).

Distribution. Luzon, Philippines.

Comparative notes. The new species is bi-coloured. A similar colour pattern is also observed in *Ceresium bicolor* Huedepohl 1994. However, the new species differs in structure and integument of prothorax. In addition, the antennae are longer and slenderer. Regrettably, male genitalia of the new species could not be fully observed. However, its 8th sternite and tergite alone are characteristic enough to distinguish this species. In fact, 8th sternite so well rounded is exceptional. 8th tergite with such setae as of the new species has not been observed before in the genus or tribe.

Ceresium aethiops Newman, 1842

Figs 7A–I, 22A–K

Ceresium Aethiops Newman, 1842: 247. Type locality: Manila.
Ceresium Aethiops: White 1855: 244.
Ceresium aethiops: Aurivillius 1912: 123.
Ceresium aethiops: Hüdepohl 1994: 93, 94.

Examined specimen. 1 ♂: "Mt. Banahao, P. I. Baker"; "1914, 14". (SMF).

Description. Venter: Fig. 7B, C. Prosternum convex, sub-parallel-sided; setae whitish, dense, curved, adpressed; punctures in middle large, deep, regular. Prosternal process rather narrow, apically expanded; apex thinned, truncated. Mesoventrite saddle-shaped; the middle with several large, irregular punctures; setae sparse and fine in middle, dense and adpressed near sides and the process. Mesoventral process broad; sides sinuate; apex rounded and deeply emarginated in the middle. Metaventrite sub-parallel-sided; setae dense and adpressed, though the middle nitid. Abdomen glossy, impunctate; sternites 3–5 pubescent on sides, nitid in the middle; 6–7 sparsely setose. 7th longer than the preceding, sub-trapezoidal; apex weakly arcuate.

Legs: Tibiae keeled (Fig. 7D).

Male genitalia (Figs 7F–I, 22A–K): Median lobe less than 2/5 the length of abdomen; bullet-shaped in dorsal view; strongly arcuate in lateral view; dorsal plate dehiscent in basal half; ventral plate longer, dehiscent in basal 7/10, apex moderately acute. Tegmen about 9/10 as long as median lobe; weakly multi-sinuate in lateral view. Parameres 2/5 the length of tegmen; apical 1/3 bi-lobed; lobes evenly narrowed toward apices; apices fringed with short to long setae. Apical process of endophallus (Figs 7F, 22D–F) more than 1/4 as long as median lobe; relatively slender, arcuate in profile. Apical sclerite apically expanding, flattened, deeply dehiscent, separately rounded; basal corners each projected posteriorly as a sharp tooth. Median sclerite sub-oval, heavily thickened on the multi-arcuate edges; with a prominent horn-shaped dorsal projection. Basal sclerite rounded-spatulate, bent upward. Blade of 8th sternite transverse; stout, apex thickened, shallowly emarginated in a multi-sinuate line; sides arcuate; apex and sides fringed with short to long setae; peduncle as long as blade. 8th tergite bell-shaped; fringed with long setae on sides and shorter ones on apex. Basal halves of sternite and tergite enclosed together by a thick, partly sclerotized membrane.

Distribution. Philippines (Manila); Luzon.

Comparative notes. The external characteristics of this specimen from Mindanao correspond to the original description of holotype. It should be supplemented that the puncture on its elytra is unusually sporadic (Fig. 7E). This type of elytral surface has not been observed in other *Ceresium* species.

Regarding genitalia, the median lobe is more strongly arcuate than usual for a *Ceresium* species. Apical process of endophallus is characteristic of this species, though it is, with its large, deeply dehiscent apical sclerite, somewhat reminiscent of *Ceresium ikuoyokoii* Yokoi, 2019, from Sumatra. Multi-sinuate apex of 8th sternite is also characteristic. In addition, the thick, partly sclerotized membrane surrounding the basal parts of sternite and tergite is noteworthy.

Ceresium lingafelteri Vives, 2013

Figs 8A–I, 23A–L

Ceresium lingafelteri Vives, 2013: 63. Type locality: "Filipinas, Is. Luzon, Cordillera Prov., Apayo".

Examined specimen. 1 ♂ "Calapan, Mindanao"; "Collection B. Schwarzer"; "Senckenberg Museum Frankfurt". (SMF).

Description of male genitalia (Figs 8D–I, 23A–L). Median lobe about half the length of abdomen; sub-bullet-shaped in dorsal view; moderately arcuate in lateral view; dorsal plate dehiscent in basal 9/10; ventral plate longer, dehiscent in basal 3/4, with apex sub-acute. Tegmen 4/5 as long as median lobe; strongly bi-sinuate in lateral view (Figs 8F, 23H). Parameres 2/5 the length

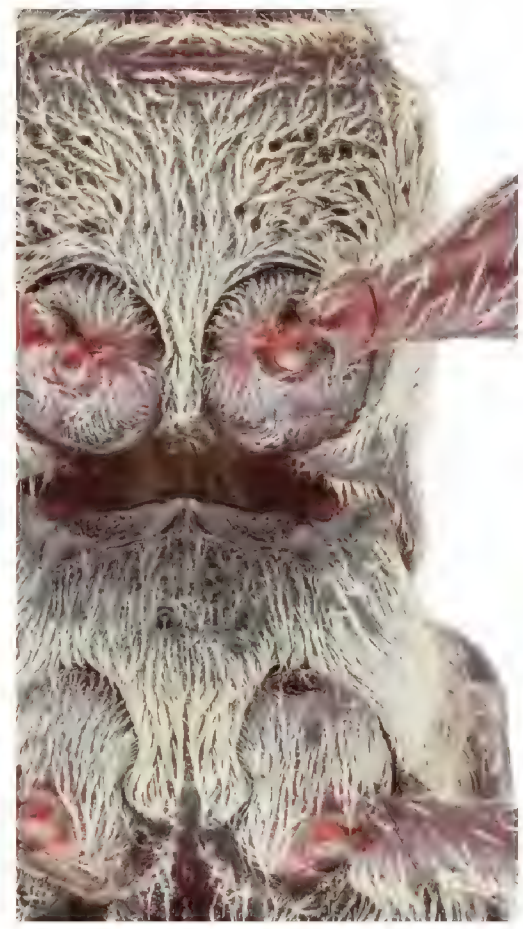


Figure 7. A–I. *Ceresium aethiops* Newman. Male from Luzon. **A.** Habitus, dorsal view; **B.** Ditto, ventral; **C.** Prosternum and mesoventrite; **D.** Protibia, ventral view; **E.** Elytron; **F.** Median lobe and endophallus with apical process; **G.** Endophallus, part, surface; **H.** Tegmen, apical part of paramere, lateral view; **I.** Ditto, latero-ventro-frontal view.

8A

8B

8C

8D

8E

8F

8G

8H

8I

Figure 8. A–I. *Ceresium lingafelteri* Vives. Male from Mindanao (New record). **A.** Habitus, dorsal view; **B.** Ditto, ventral view; **C.** Head and pronotum; **D.** Median lobe with endophallus, lateral view; **E.** Apical process of endophallus, ventral view; **F.** Tegmen, lateral view; **G.** Parameres, ventral view; **H.** 8th sternite, ventral view; **I.** 9th sternite (spicum gastrale) and tergite, dorsal view.

of tegmen; sides tapering toward apices in a sinuate line; apical 1/3 bi-lobed; lobes each fringed with short to long apical setae; additionally with a cluster of bushy setae on the external side near base; ventral sides widely emarginated. Apical process of endophallus (Figs 8E, 23D–F) nearly 1/4 as long as median lobe; relatively slender; arcuate in lateral view. Both lateral sclerites elongated, in lateral view sharply bent at basal 1/3; apical 2/3 each projected upward in a bi-sinuate line to a sharp tooth; basal third each posteriorly extended upward to a broad, vertical wing; both wings heavily thickened on the multi-curved edges, connected to each other with a dorsal belt. Dorso-apical projection horn-shaped. Base weakly sclerotized; linguate in dorsal view, raised in middle; in profile apically thinned and bent upwards. Blade of 8th sternite transverse, cotylodenary; apex in "U"-form emarginated; base deeply emarginated on each side of the middle; basal middle heavily thickened; apex and sides fringed with hairs of long to medium length; peduncle much shorter than blade. 8th tergite elongated, linguate; fringed with sporadic setae. Peduncle of 9th sternite (spicum gastrale) about three times as long as the bifurcation. 9th tergite sub-U-shaped.

Distribution. Luzon, Philippines; **Mindanao** (**New record**).

Comparative notes. The setae of this specimen from Mindanao are whitish, and the pronotal sides have a few erect hairs. In other aspects, it corresponds to the original description of the holotype from Luzon.

The genitalia of this species are remarkable in several aspects. First, the dorsal plate of the median lobe is much more deeply dehiscent than usual. It is even more dehiscent than ventral plate, which is atypical. Second, tegmen is extraordinarily bi-sinuate in lateral view, while the external sides of parameres are each clothed with a cluster of bushy hairs. Third, the structure of 8th sternite is of a rare type, similar to that of *C. elongatipenne* sp. nov. Fourth, the peduncle of 9th sternite (speculum gastrale) is unusually long. These singularities have either not been observed before, or only rarely, in the genus *Ceresium*. Apical process of endophallus is characteristic of this species.

Ceresium longicorne Pic.

Figs 9A–E, 24A–K

Ceresium longicorne Pic, 1926: 24. Type locality: "Formosa".
Ceresium longicorne: Matsushita, 1932: 67, 68.
Ceresium japonicum Matsushita, 1932: 67, 68.
Ceresium tsushimanum Ohbayashi, 1961: 17.
Ceresium longicorne: Hua, 2002: 200.

Examined specimens. 1♂1♀, "Sant Lucia, central Palawan, Philippines; Apr. 11, 1989, T. Niisato leg." (CTN); 1♀, ditto, with datum "Apr.10.1989" (CTN); 1♂2♀, "Trident Mines, Palawan, 3.v. 1989, A. Saito leg." (CTN); 1♀, "(PHILIPPINES), Languan, 10m, N. Palawan Is. 1.IX. 1985, By light trap, M. Tomokuni" (CNO).

Figs 9A–E and 24A–K below were based on the first male specimen indicated above.

Description of male genitalia (Fig. 24A–K). Median lobe about 9/20 the length of abdomen; sub-bullet-shaped in dorsal view, moderately arcuate in lateral view; dorsal plate dehiscent in basal 3/5; ventral plate longer, dehiscent in basal 3/4. Tegmen more than 4/5 as long as median lobe; moderately arcuate in profile. Parameres half the length of tegmen; apical 2/5 bi-lobed; lobes each fringed with several short apical setae. Apical process of endophallus (Fig. 24D–F) nearly 1/5 as long as median lobe, sub-monolithic; the middle thick in lateral view, with a prominent, horn-shaped dorsal projection; sides each with an arcuate, blunt projection curved downward; base slender-spatulate. 8th sternite cotyledonary; blade extensively thinned in middle; apex in "V"-form emarginated, fringed with several long setae; peduncle a little longer than blade. 8th tergite sub-squarish with rounded corners; larger than sternite; apex weakly emarginated; fringed with several long setae.

Distribution. Taiwan; Japan; Korea; South China; Philippines; **Palawan,** Philippines **(New record).**

Remark. "Philippines" as a distribution is included in the catalogues by Hua (2002), without a reference. The exact locality in the Philippines is unknown. Distribution in Palawan is thus treated as a new record.

Comparative notes. Compared to the holotype, no essential difference was observed regarding external characteristics. *Ceresium longicorne* shares the characteristic puncture pattern on elytra with the now sympatric *Ceresium immite* Newman, 1842. In both species, the punctures in the apical halves of elytra are diminutive, in clear contrast to the normal ones in the basal halves, so that the surface of each elytron is optically divided in apical and basal halves. As this type of elytral surface is observed solely in these two cases, both now sympatric species are probably affiliated, though clearly differing in pronotal surface (Figs 9E, 10B).

More interesting for the taxonomy is the commonly shared structure of the head. The fronts of both *C. longicorne* and *C. immite* are short and steep (Figs 9D, E, 10A, B), while the antennae are much longer than usual. These characteristics are more reminiscent of the genus *Examnes* than of *Ceresium*. No less significant is the affinity of *C. longicorne* to *Examnes* species in genitalia. The apical process of its endophallus in particular is of similar architecture as those of *Examnes* species (Figs 24D–F, 25D–F, 26C–E, 27D–F). An analogy in 8th sternite and tergite is also noticeable (Figs 24J, 25J, 26F, 27K). (See below Discussion *Ceresium-Examnes*).

Ceresium quinquemaculatum sp. nov.

https://zoobank.org/A6D55A56-6D69-43E6-BBCC-03CB010A4BA8
Figs 11A–F, 29A, B

Type material. ***Holotype*** ♀ (SMF)**:** "Phil. I., Don Salvador, Benedicto Negros, Occid. Visayas VII-2015, Cope Collection". (former CJC).

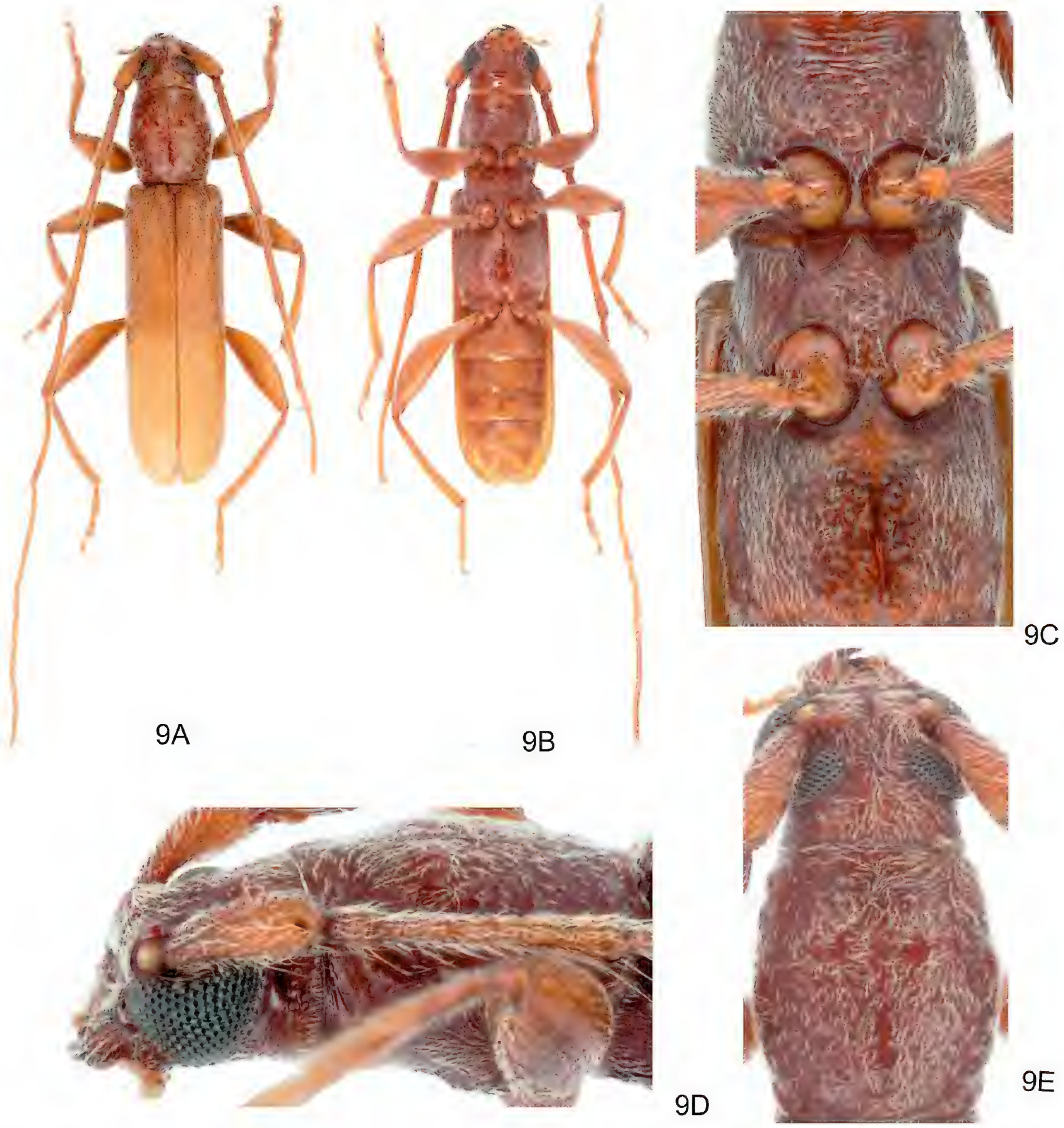


Figure 9. A–E. *Ceresium longicorne* PIC. Male from Palawan, Philippines (New record). **A.** Habitus, dorsal view; **B.** Ditto, ventral; **C.** Prosternum and mesoventrite; **D.** Head and pronotum, lateral view; **E.** Ditto, dorsal.

Figure 10. A, B. *Ceresium immite* Newman. Holotype. **A.** Head and pronotum, lateral view; **B.** Ditto, dorsal.

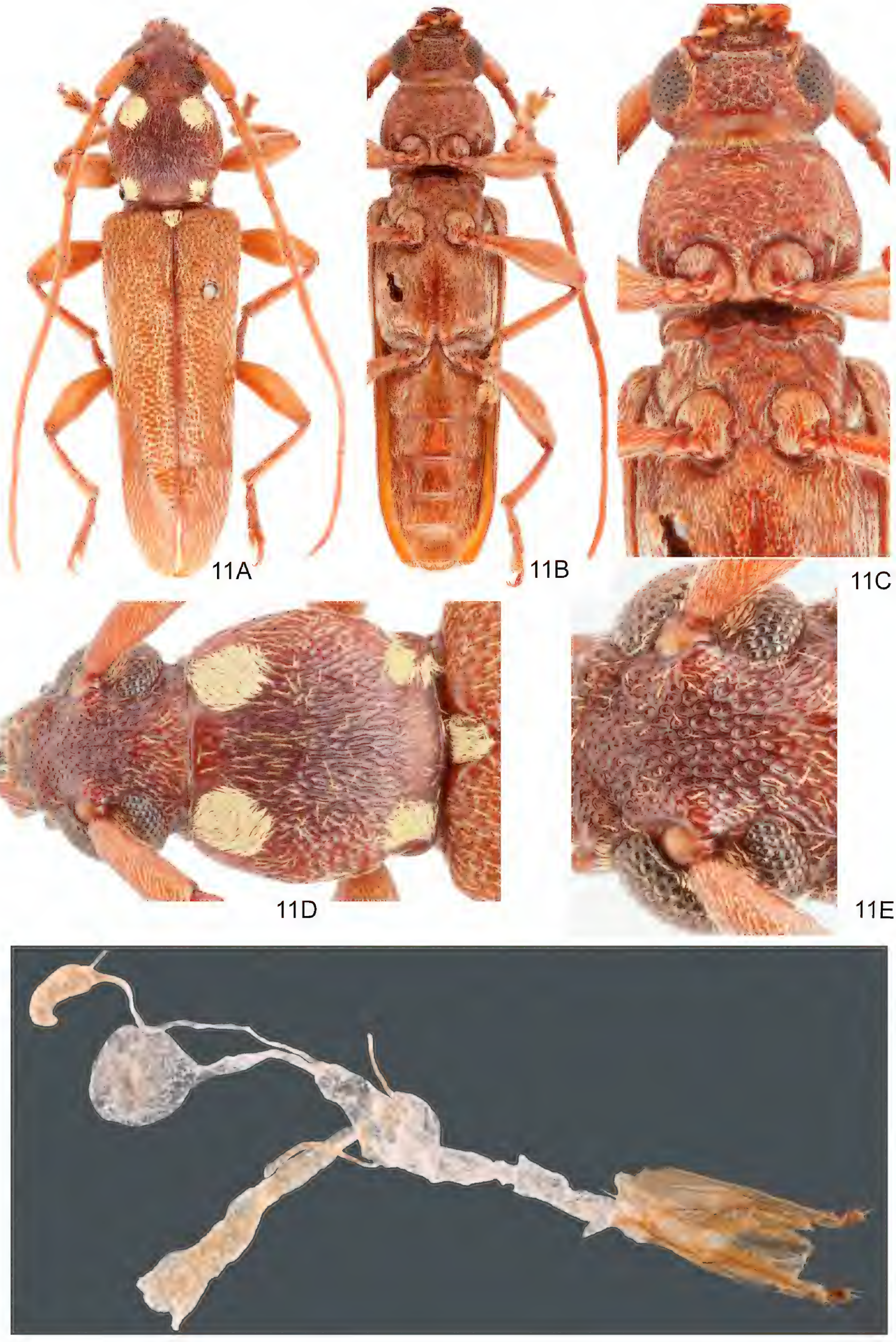


Figure 11. A–F. *Ceresium quinquemaculatum* sp. nov. Holotype female. **A.** Habitus, dorsal view; **B.** Ditto, ventral; **C.** Prosternum and mesoventrite; **D.** Head and pronotum; **E.** Head; **F.** Genitalia, from top left: spermatheca; bursa copulatrix; median oviduct; vagina with vaginal plates; 9th sternite.

Etymology. The name of this species refers to its altogether five maculae on pronotum and scutellum.

Diagnosis. Colour yellowish brown. Pronotum evenly rounded; with four tomenta-maculae; surface longitudinally striate-retuculate. Scutellum with tomentum. Elytra apically tapering.

Measurements. Holotype ♀: TL = 10.2 mm; EL/TL = 0.68; EL/EW = 2.70; HW/PW = 0.84; PL/PW = 0.95; PA/PW = 0.66; PB/PW = 0.82.

Description. Colour yellowish brown; pronotum and head darker; setae pale-yellowish.

Head narrower than pronotum; glossy; densely punctured or sub-reticulate; setae sparse, short and fine. Frons transverse, sub-rectangular, flattened, not steep. Vertex broad, shallowly concave; reticulate (Fig. 11E). Occiput finely sub-striate. Eyes separated from each other by half the width of occiput or about three times of the upper eye-lobes. Antennal supports broad, flattened, sub-reticulate or densely punctate. Antennae reaching elytral apices by the last article. Length of antennomeres relative to scape: III = 0.86; IV = 0.84; V = 1.1; VI = 1.1; VII = 1.05; VIII = 1.0; IX = 0.92; X = 0.92; XI = 0.92. Scapes moderately clavate, slightly arcuate.

Pronotum resembles that of *C. striatocolle*; more evenly rounded, sub-spherical; a little shorter than broad; with two pairs of tomenta-maculae; the latero-apical maculae large, oval, oblique, clearly bordered; the latero-basal ones smaller, with irregular boundaries; setae otherwise sparse, short, stout, disorderly. Surface of disc longitudinally striate-reticulate. Sides distinctly and evenly arcuate, though basal 1/7 constricted; punctures on sides large and deep.

Elytra short, tapering sub-linear toward apices; disc well-flattened. Punctures dense, apically attenuating; setae short and curved.

Legs short and stout; femora clavate from base on.

Venter (Fig. 11B–C): Prosternum convex, rounded; punctures dense, variable in size, setiferous; setae short, curved, disorderly. Prosternal process apically expanded; apex truncated. Mesoventrite saddle-shaped; setae short and curved; punctures in the middle dense and large. Mesoventral process broad, flattened; apex moderately emarginated. Metaventrite shallowly, coarsely punctured along the median furrow; setae in the middle sparse, short and curved; dense, recumbent and aligned near sides. Abdomen glossy, sub-glabrous; setae sparse in middle, denser on sides. 7th sternite sub-trapezoidal, though apex weakly arcuate.

Female genitalia (Figs 11F, 29A, B): Blade of 8th sternite sub-squarish; slightly narrowed toward base; basal corners acute; apex fringed with setae of medium length; peduncle 2.6 times as long as blade. 8th tergite weakly dilated toward base. 9th sternite short and broad; coxite as long as paraproct. Vaginal plates strongly arcuate. Spermatheca kidney-shaped; constricted near base, as in *C. striatocolle*.

Distribution. Visaya, Philippines.

Comparative notes. Pronotum of this new species is reminiscent of *C. striatocolle* from Borneo. Above all, the striate-reticulate disc and lateral tomento-maculae are commonly shared. However, the pronotal sides of the new species are more evenly rounded, while the maculae are larger and more clearly bordered. In addition, it obviously differs in body colour. Further, the head is more densely punctured or sub-reticulate, while the setae are shorter and finer. Female genitalia are analogous, differing in details (Fig. 11F, 29A, B, 30A–C). The relationship between these two species should be further explored, with comparison of male genitalia.

Ceresium crassum sp. nov.

https://zoobank.org/866EDA1C-4406-4117-B8D7-9B91CCA7EB10

Figs 12A–F, 31A, B

Type material. ***Holotype*** ♀ (SMF)**:** "Mt. Makiling, 31.I. 1986, Y.Taguchi, from Almon". (former CHM).

Etymology. The name of this species refers to the large and stout body.

Diagnosis. Large. Antennae short. Body colour brownish; femora bi-coloured. Setae on head, pronotum and sides of abdomen erect to sub-erect.

Measurements. Holotype ♀: TL = 17.5 mm; EL/TL = 0.68; EL/EW = 2.86; HW/PW = 0.78; PL/PW = 1.04; PA/PW = 0.64; PB/PW = 0.86.

Description. Body colour reddish dark brown; pronotum, head, antennae and tibiae darker. Femora reddish brown; apices blackened. Setae whitish.

Head narrower than pronotum; glossy; punctures dense, large, deep, setiferous; setae stout, curved, sub-erect, disorderly, pointing to different directions. Frons transverse, reversed-sub-trapezoidal, not steep; the apical middle weakly elevated, sparsely punctured; apical corners sub-reticulate. Vertex flattened, feebly concave. Punctures on occiput large near eyes, obtuse otherwise. Eyes separated from one another by half the width of occiput or twice of the upper eye-lobes. Antennal supports flattened; punctate and setose. Antennae short, hardly reaching the 5th sternite; antennomeres III and IV each 4/5 as long as scape; V and VI equally as long; VII–XI gradually decreasing in length; XI as long as scape. Scapes sub-cylindrical; slightly arcuate.

Pronotum slightly longer than broad, well rounded; sides almost evenly arcuate; punctures dense and regular; median stripe short and narrow; setae stout, curved, erect to sub-erect.

Elytra feebly tapering toward apices; basal middle elevated; punctures dense and regular, apically attenuating; setae short and curved.

Legs: Femora clavate from base; bi-coloured; apices blackened and obtusely punctured.

Venter (Fig. 12B, D): Prosternum weakly impressed in the middle, concave in lateral view. Punctures large and regular; setae dense, curved, recumbent. Prosternal process narrow, constricted; apically expanded, bent downward; apical middle thinned, apex weakly arcuate, fringed with fine setae. Mesoventrite saddle-shaped; sharply elevated toward the process; punctures large; setae sparse in the middle, dense and adpressed near sides. Mesoventral process broad, flattened; apically bi-lobed;

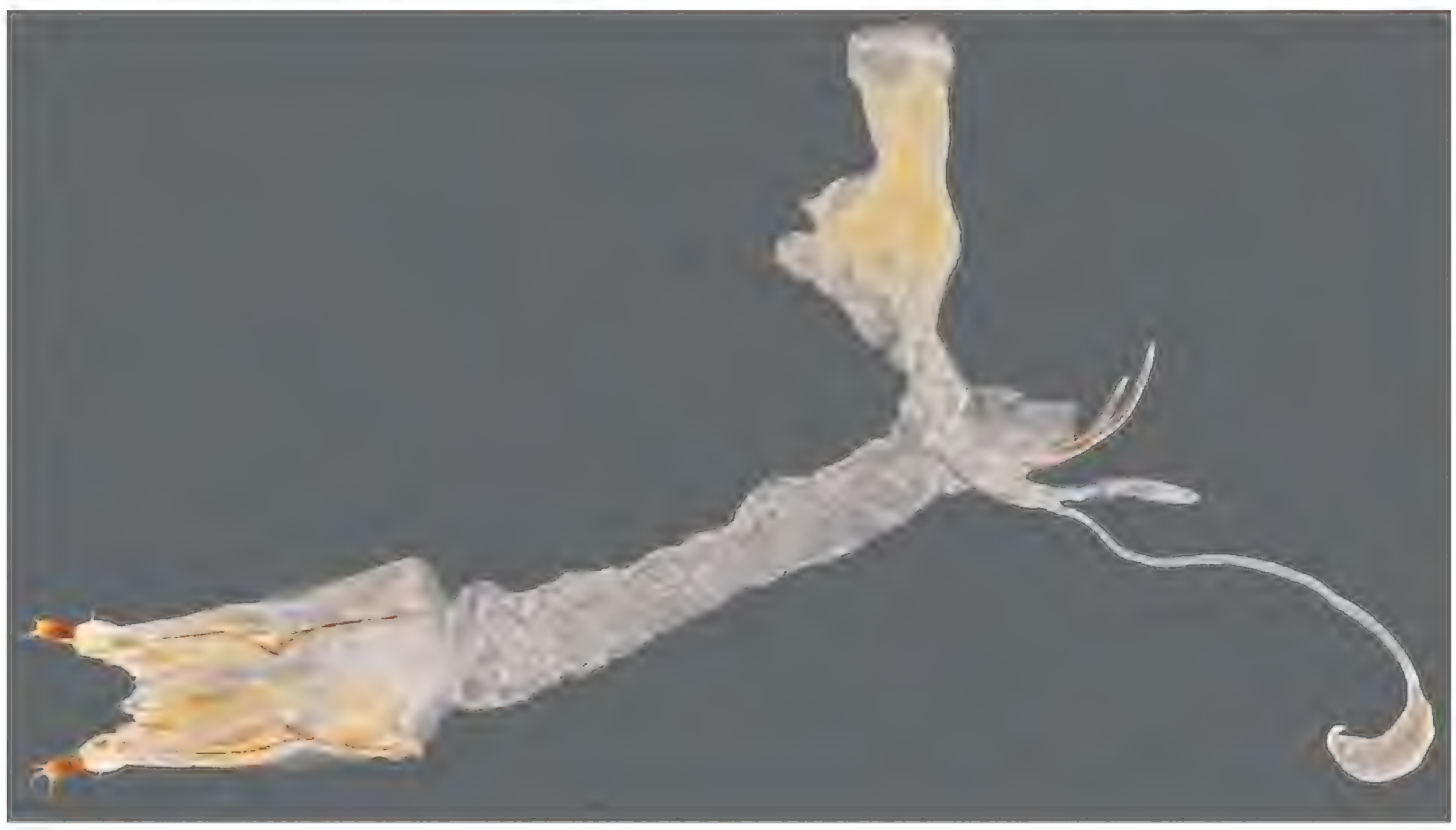
12A

12B

12C

12D

12E



12F

Figure 12. A–F. *Ceresium crassum* sp. nov. Holotype female. **A.** Habitus, dorsal view; **B.** Ditto, ventral; **C.** Pronotum; **D.** Prosternum and mesoventrite; **E.** 8th sternite-tergite, apices, frontal view; **F.** Genitalia, clockwise from top: median oviduct; vaginal plates; bursa copulatrix; spermatheca; vagina; far left: 9th sternite.

each lobe well-rounded. Metaventrite apically slightly dilated; setae sparse in the middle; dense and adpressed otherwise. Abdomen glossy; punctures obtuse; setae curved, adpressed; additional setae near sides longer, erect; sternites 3–6 gradually attenuating. 7th sternite longer than the preceding, rounded; setae fine.

Female genitalia (Figs 12E, F, 31A, B). Blade of 8th sternite reversed sub-trapezoidal; apical setae short to medium; peduncle twice as long as blade. 8th tergite sub-squarish, broader than sternite; apices of 8th sternite and tergite both thickened; 9th sternite short and broad; coxite nearly as long as paraproct. Vaginal plates moderately arcuate. Spermatheca kidney-shaped, connected with a long, narrow vessel to vagina; bursa copulatrix connected so with a short tube.

Distribution. Luzon, Philippines.

Comparative notes. The new species is comparable to *Ceresium furtivum* Pascoe, 1869, from the Sunda Islands. However, it is much larger, and its antennae distinctly shorter. Further, its setae on head, pronotum and abdomen are erect to sub-erect instead of recumbent. In addition, the coloration pattern of femora is distinct, rather resembling the sympatric *Ceresium femoratum* Aurivillius, 1927. The latter differs, however, in other essential characters such as structure of body, legs and punctures. As to female genitalia, its 8th sternite and tergite are shorter than those of *C. furtivum*, not parallel-sided. Setae and puncture thereupon are also different. Above all, their apices are thickened (Figs 12E, 31A, B, 32A–C).

Examnes lumawigi lumawigi Hüdepohl, 1990

Examnes lumawigi Hüdepohl, 1990: 88. Type locality: ♂, "Luzon, Mountain province"; ♀, "Sibuyan, Espana".

Examnes lumawigi: Yokoi et al. 2016: 230.

Distribution. Luzon and Sibuyan, Philippines.

Examnes lumawigi subrugosus subsp. nov.

https://zoobank.org/7C452F51-85C5-41A8-A808-68F208A4F60E

Figs 13A–F, 25A–L

Type material. ***Holotype*** ♂ (SMF)**:** "Phil., E. Luzon, Sierra Madre"; "Dipaculao, Aurora, I-2014"; "Cope Collection". (former CJC).

Etymology. The name of this subspecies refers to the pronotal surface.

Diagnosis. This subspecies differs from the nominotype in the structure and integument of pronotum.

Measurements. Holotype ♂: TL = 10.0 mm; EL/TL = 0.67; EL/EW = 2.85; HW/PW = 0.90; PL/PW = 1.02; PA/PW = 0.76; PB/PW = 0.92.

External characteristics: comparison with the nominotype. Body smaller. Pronotum with PL/PW = 1.02 slightly longer than wide, instead of "distinctly longer than wide"; surface obtusely rugose; several erect setae on each side (Fig. 13C, D). 7th sternite feebly emarginated instead of sub-truncated.

Description of male genitalia (Figs 13F, 25A–L). Median lobe about half the length of abdomen; sub-bullet-shaped in dorsal view, in lateral view strongly curved in the middle; dorsal plate dehiscent in basal 11/20; ventral plate longer, dehiscent in basal 3/4, gradually narrowed toward apex. Tegmen almost 5/6 as long as median lobe; weakly bi-sinuate in lateral view. Parameres half the length of tegmen; apical 1/6 bi-lobed; lobes each fringed with short to medium setae; venter widely emarginated. Apical process of endophallus as Figs 13F, 25D–F; about 1/3 as long as median lobe, sub-monolithic, sub-fusiform in dorsal view, arcuate in lateral view, with a prominent, horn-shaped dorsal projection; sides thick, elongated; the middle sub-enclosed by a membranous sack; base sub-triangular-spatulate, bent upward in profile. Blade of 8th sternite transverse, cotyledonary; apex in shallow "V"-form emarginated; extensively thinned in middle; apex and sides fringed with sporadic long hairs; apical middle clothed with additional shorter hairs; basal middle thickened near the peduncle; peduncle nearly as long as blade. 8th tergite transverse, sub-trapezoidal; corners rounded; fringed with sporadic medium to long hairs.

Distribution. Luzon, Philippines.

Comparative notes. The pronotal structure and surface of this subspecies differ substantially from those of the nominotype *Examnes lumawigi lumawigi* (Fig. 14A, B). The other observed differences are not of fundamental nature. The holotype male of this new subspecies was collected in Luzon, same as that of *E. lumawigi lumawigi*, though in a geographically separated locality. Its final taxonomical position should be determined by comparison of male genitalia. In this publication, it is described as a new subspecies.

Apical process of its endophallus is essentially of similar structure as that of *E. philippensis*, nominotype of the genus *Examnes*. Differences are concerned with the structures of sides and base as well as of appendage (Figs 25D–F, 27D–F).

Examnes kawakamii Yokoi, Makihara & Noerdjito

Figs 15A–D, 26A–F

Examnes kawakamii Yokoi et al., 2016: 233. Type locality: Bukit Soeharto, Kalimantan Timur, Indonesia.

Examined specimen. 1♂: "Basilan Philippin"; "Coll-Schwarzer"; "Senckenberg-Museum, Frankfurt". (SMF).

Supplementary description of male genitalia (Figs 15C, D, 26A–F). Median lobe and tegmen as of the holotype. Apical process of endophallus as Figs 15C, D, 26C–E; about 1/4 as long as median lobe, sub-monolithic; the middle thick and stout, with a prominent, horn-shaped dorsal projection; sides apically projected, each loosely connected to an extra-large, bi-lobed, membranous apical appendage; adjacent membrane of endophallus longitudinally perforated with thick edges; base sub-squarish-spatulate. Blade of 8th sternite in shallow "V"-form emarginated.

13A

13B

13C

13D

13F

13E

Figure 13. A–F. *Examnes lumawigi subrugosus* subsp. nov. Holotype male. **A.** Habitus, dorsal view; **B.** Ditto, ventral; **C.** Head and pronotum; **D.** Ditto, front-lateral view; **E.** Prosternum and mesoventrite; **F.** Endophallus, with apical process.

Remark. Endophallus of this species is described above, as it was not included in the previous description of the holotype from Borneo (Yokoi et al. 2016).

Distribution. Borneo; **Basilan, Philippines** (**New Record**).

Comparative notes. No essential difference from the holotype from Borneo is observed. Though the apex of 8th sternite is less strongly emarginated, the deviation is tolerable as a variation within a species. Apical process of its endophallus is essentially of similar structure as

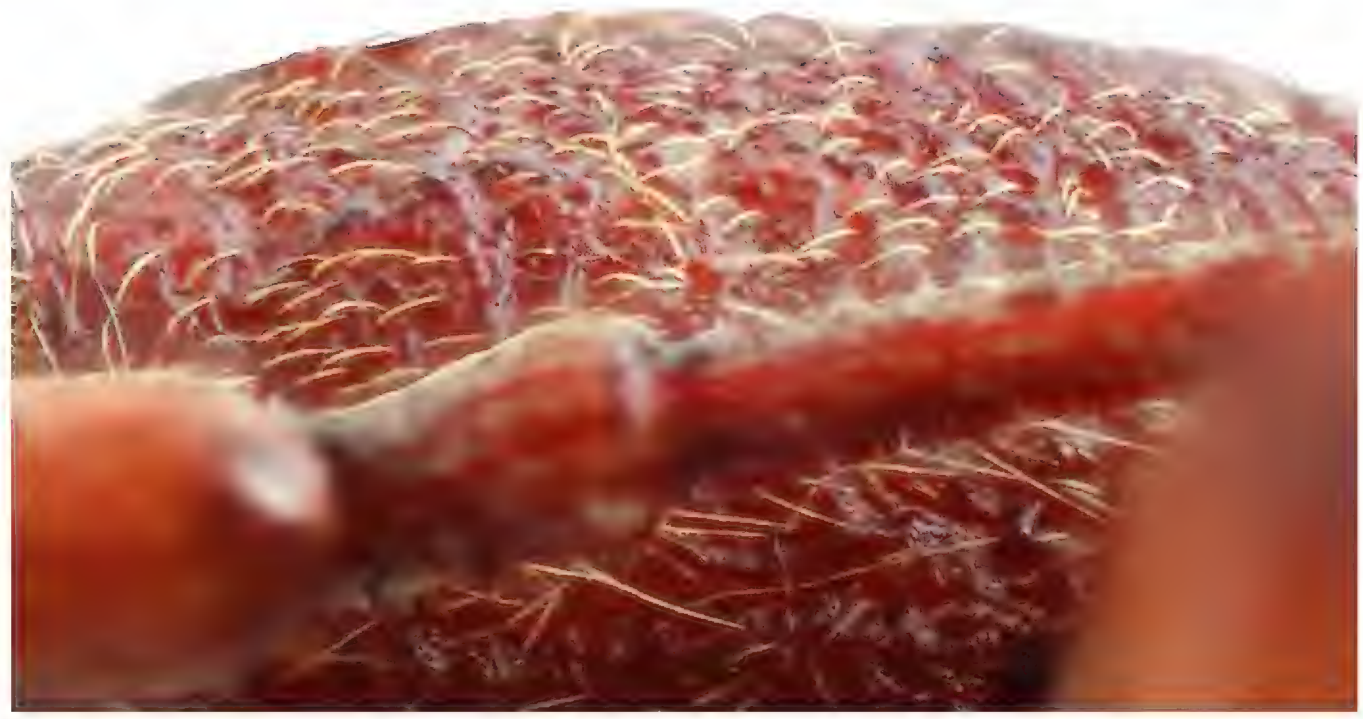


Figure 14. A, B. Pronotum in lateral view, comparison. **A.** *Examnes lumawigi lumawigi* Hüdepohl. Holotype male, from Mountain Province, Luzon. **B.** *Examnes lumawigi subrugosus* subsp. nov. Holotype male, from Sierra Madre, Luzon.

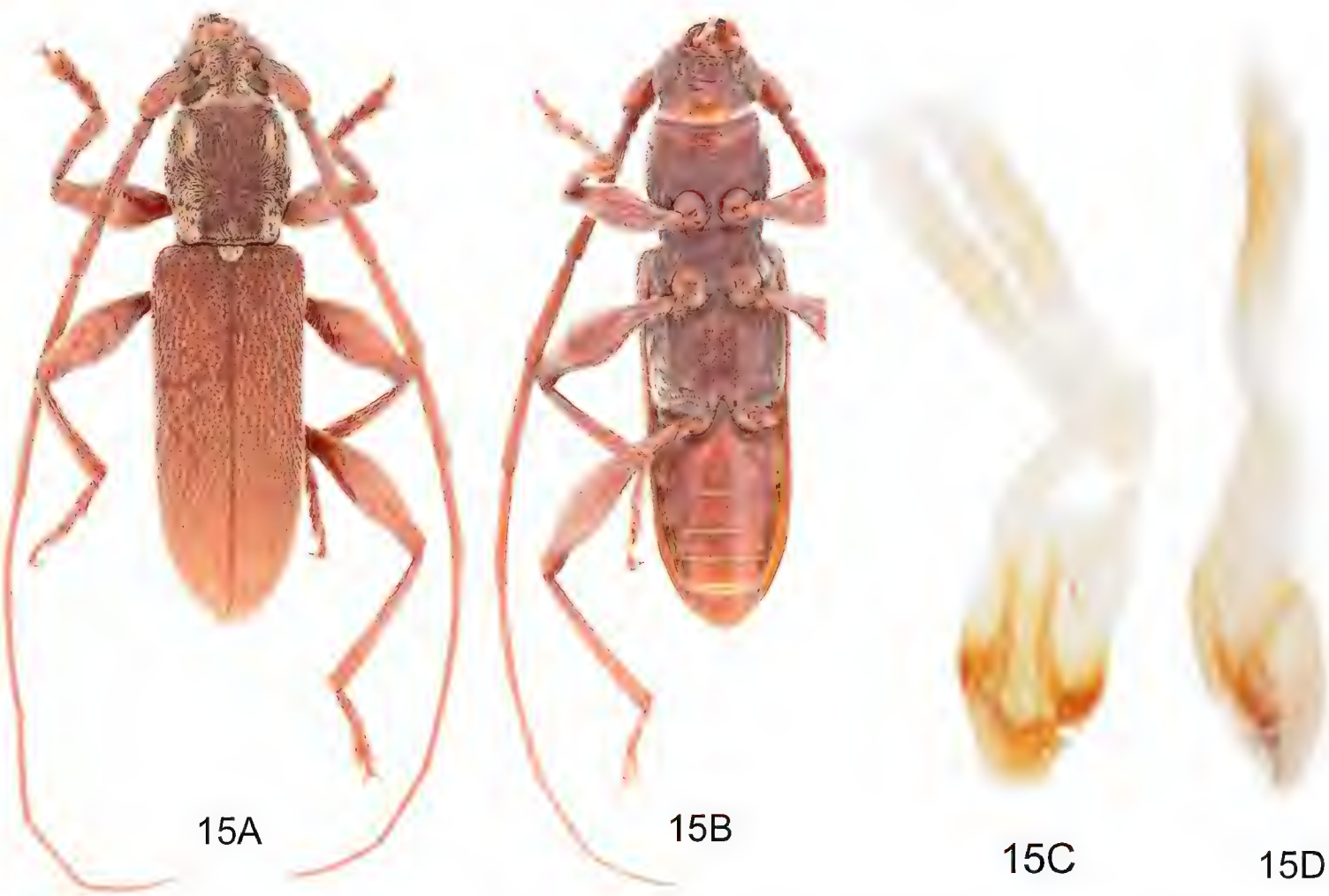


Figure 15. A–D. *Examnes kawakamii* Yokoi, Makihara & Noerdjito. Male from Basilan, Philippines (New record). **A.** Habitus, dorsal view; **B.** Ditto, ventral; **C.** Apical process of endophallus, dorsal view; **D.** Ditto, lateral.

that of *E. philippensis*. Differences are concerned with the structures of sides and base as well as of appendage (Figs 26C–E, 27D–F). The disproportionately large appendage is remarkable.

Examnes philippensis (Newman)

Figs 16A–D, 27A–L

Examined specimen. 1♂ "(Bazilan)"; "Maloong"; "vii-viii. 1982 ; « K. Kuwasima »". (CHM).

Supplementary description of male genitalia (Figs 16C, D, 27A–L). Median lobe more than 1/3 the length of abdomen; sub-bullet-shaped in dorsal view, moderately arcuate in profile; dorsal plate dehiscent in basal 3/5; ventral plate longer, apically pointed upward, dehiscent in basal 4/5. Tegmen 9/10 as long as median lobe; moderately arcuate in profile. Parameres 9/20 the length of tegmen; apical 1/3 bi-lobed; lobes fringed with short, stout apical setae. Apical process of endophallus as Figs 16C, D, 27D–F; nearly 1/4 as long as median lobe, sub-monolithic; the middle thick in profile, with a prominent, horn-shaped, dorsal projection; sides each ventrally connected to a winding semi-toroidal appendage; base sub-triangular-spatulate in dorsal view, in profile thick, bent upward. 8th sternite cotyledonary; apex in "V"-form emarginated; blade extensively thinned in middle; apex and sides fringed with hairs of various lengths; peduncle a little longer than blade, thickened near blade. 8th tergite sub-squarish; much larger than the sternite; apex fringed with hairs of various lengths. 9th tergite connected to 9th sternite (spiculum gastrale) with a pair of elongated struts; latero-apical corners produced, with a few short, stout setae.

Remark. This specimen from Basilan was examined for comparative purposes. Genitalia of this species is described above, as endophallus was not included in the previous description (Yokoi et al. 2016).

Distribution. Luzon, Bohol, Mindanao (Philippines), **Basilan,** Philippines **(New record)**; Bali; Maluku; Waigeou; West Ilian; Papua (Indonesia); Papua-New-guinea; Vanikoro (Solomon Islands).

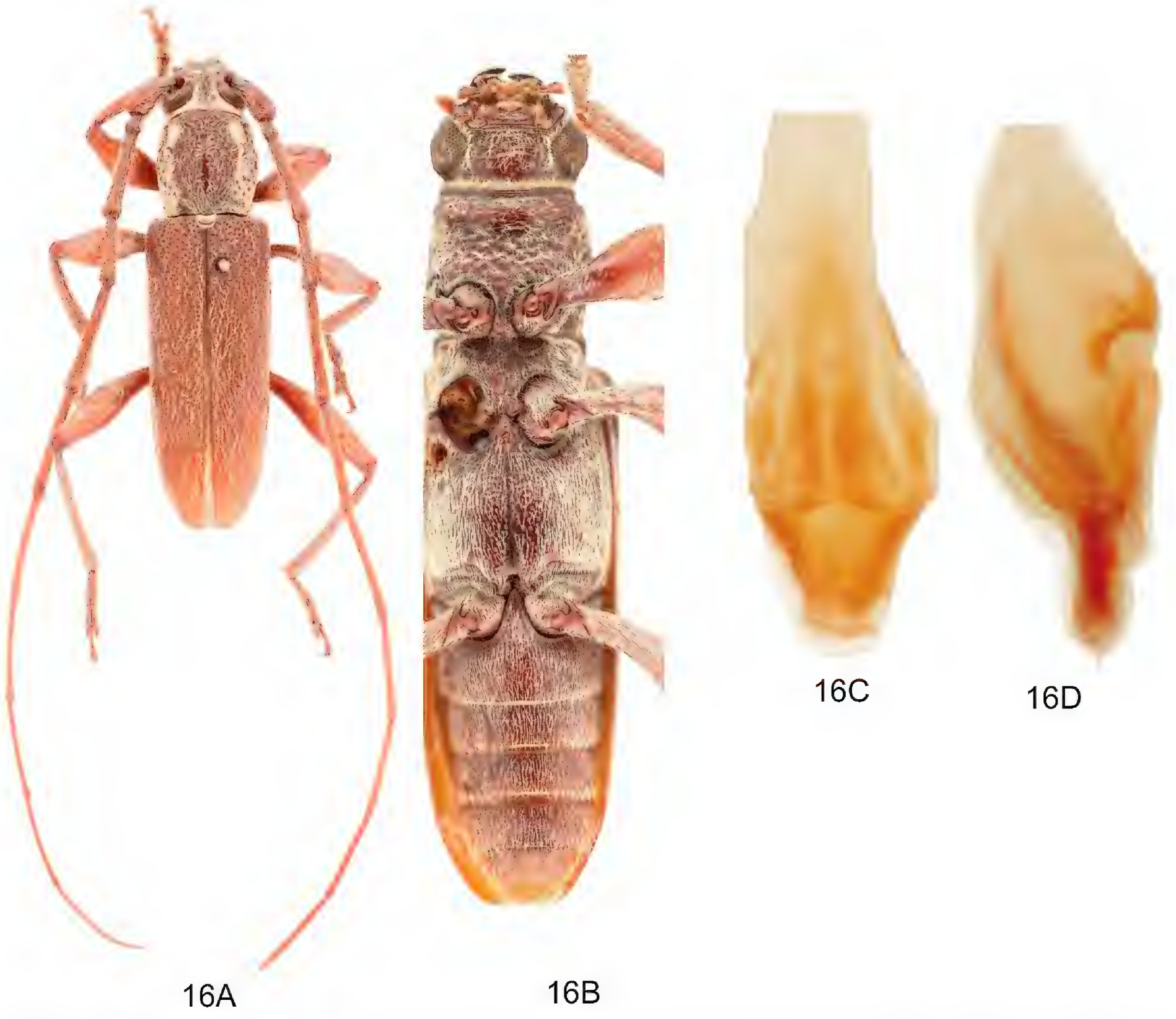


Figure 16. A–D. *Examnes philippensis* Newman. Male from Basilan, Philippines. (New record). **A.** Habitus, dorsal view; **B.** Ditto, ventral; **C.** Apical process of endophallus, dorsal view; **D.** Ditto, lateral.

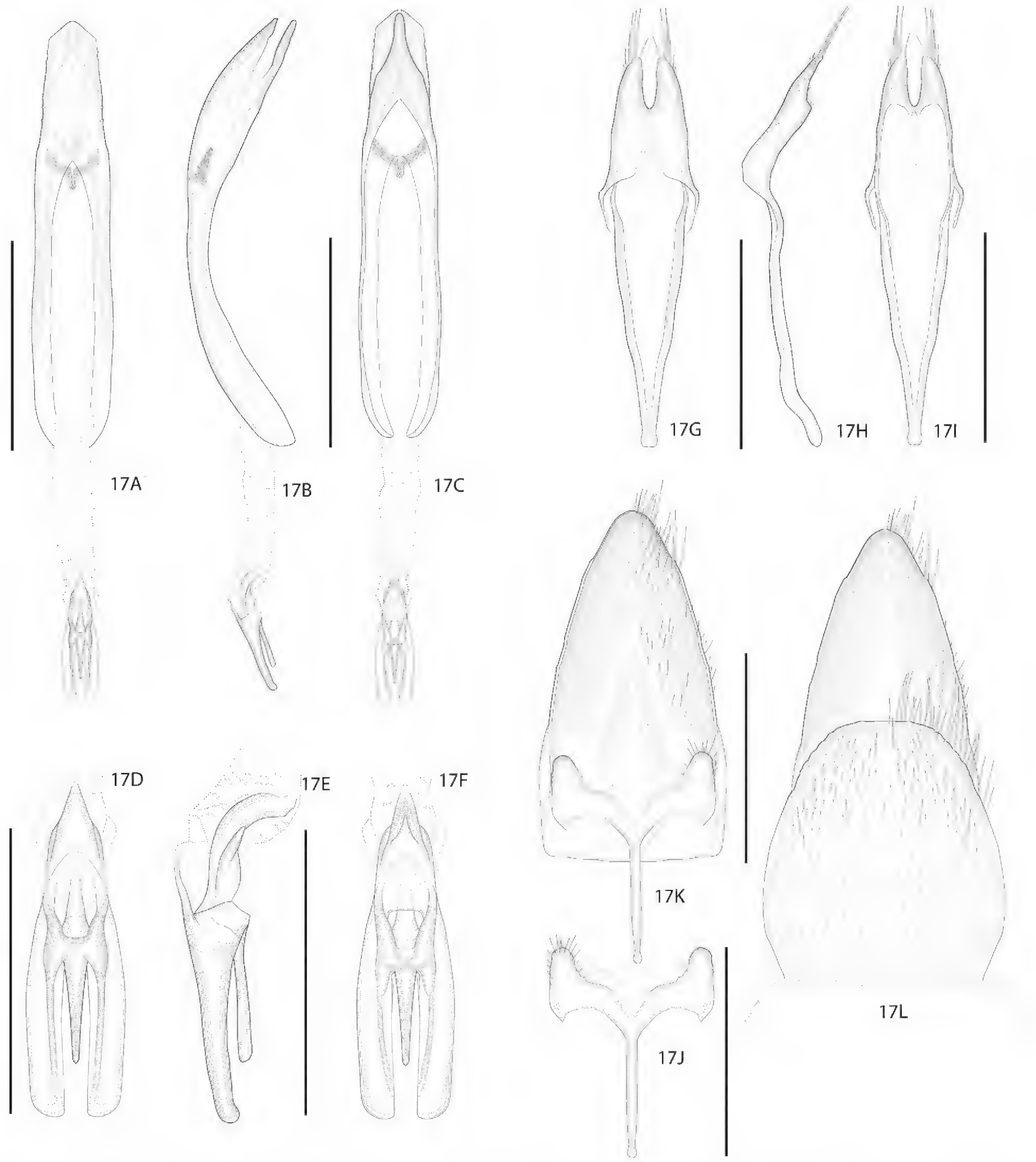


Figure 17. A–L. *Ceresium elongatipenne* sp. nov. Holotype male. Genitalia. **A.** Median lobe with endophallus, dorsal view; **B.** Ditto, lateral; **C.** Ditto, ventral; **D.** Endophallus, apical process, dorsal view; **E.** Ditto, lateral; **F.** Ditto, ventral; **G.** Tegmen, dorsal view; **H.** Ditto, lateral; **I.** Ditto, ventral; **J.** 8th sternite, ventral view; **K.** Ditto, with 8th tergite in the background; **L.** 7th and 8th tergite, dorsal view. Scale bars: 0.5 mm (**D–F**); 1 mm (**A–C, G–L**).

Note. The holotype was recorded from "Insularum Manillaum". There was no further indication. The distribution in Basilan is thus treated as a new record within the Philippines.

Comparative notes. Essentially, the external characteristics of this specimen from Basilan correspond to those of the holotype from Luzon. Its setose 9th tergite is noteworthy. Specimens from other localities should be re-examined in this regard.

Discussion

Male genitalia – *Ceresium* of the Philippines

Including the previously examined species (Yokoi 2019), a total of 12 *Ceresium* taxa from the Philippines have now been examined as to genitalia. The new investigation of Philippine species has underlined the observations already made for other *Ceresium* species (Yokoi 2019, 2021a, 2021b, 2022;

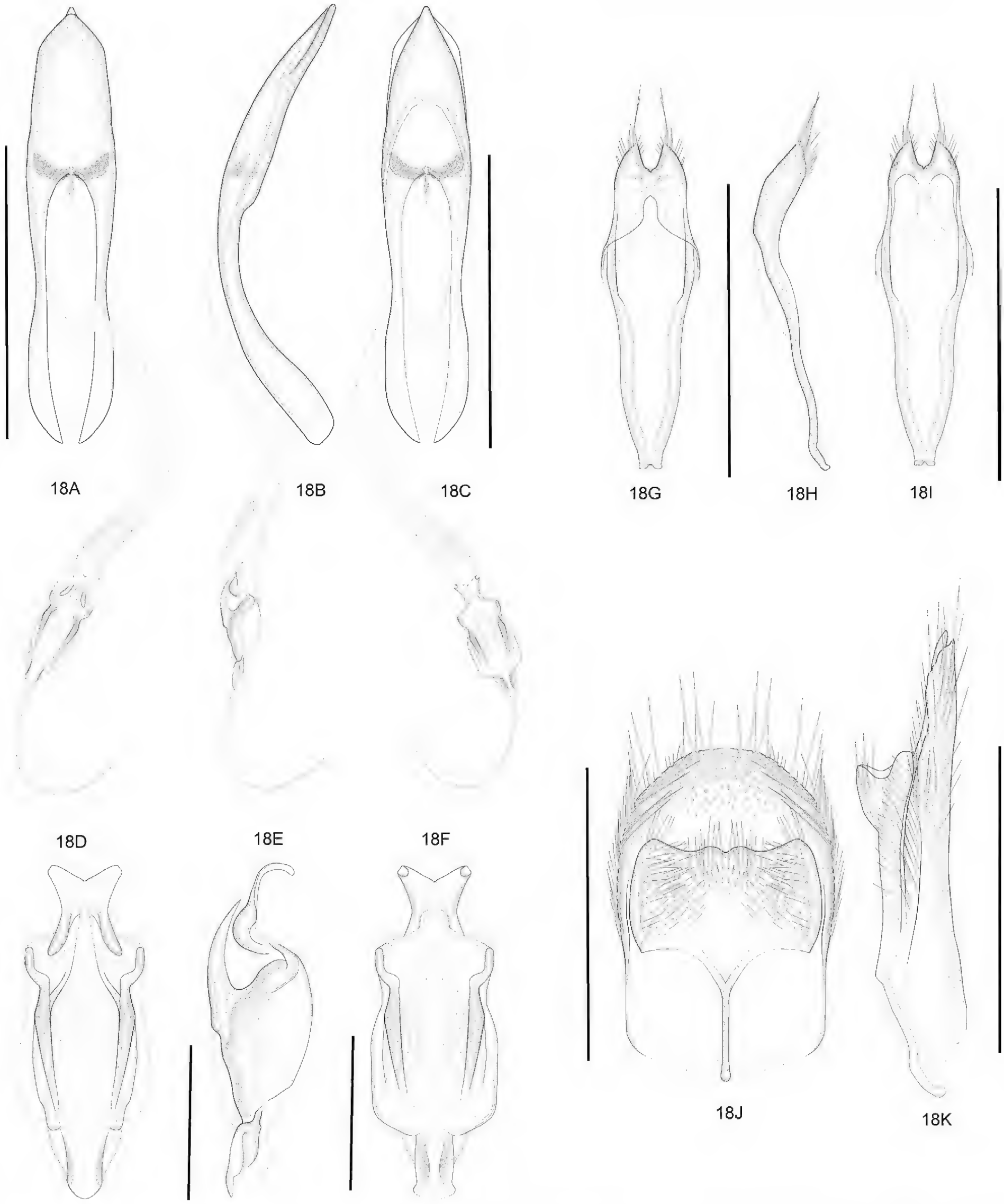


Figure 18. A–K. *Ceresium holzschuhi* sp. nov. Holotype male. Genitalia. **A.** Median lobe with endophallus, dorsal view; **B.** Ditto, lateral; **C.** Ditto, ventral; **D.** Endophallus, apical process, dorsal view; **E.** Ditto, lateral; **F.** Ditto, ventral; **G.** Tegmen, dorsal view; **H.** Ditto, lateral; **I.** Ditto, ventral; **J.** 8th sternite and tergite, ventral view; **K.** Ditto, fronto-lateral view. Scale bars: 0.2 mm (**D–F**); 1 mm (**A–C, G–K**).

Yokoi et al. 2019). The apical processes of the endophalli are intricate in structure, diversified and characteristic for each species, while the 8th sternite and tergite are similarly diversified and characteristic. Though this can be said for *Ceresium* species in general, the investigation has additionally disclosed other significant aspects. It has revealed diverse types of endophalli and 8th sternites, which are distinct from those of the Oriental species in morphology. Furthermore, remarkable morphologies have been observed in other parts of the genitalia such as the median lobe or tegmen. The *Ceresium* species of the Philippines, the majority of which are endemic, are frequently atypical in terms of genitalia.

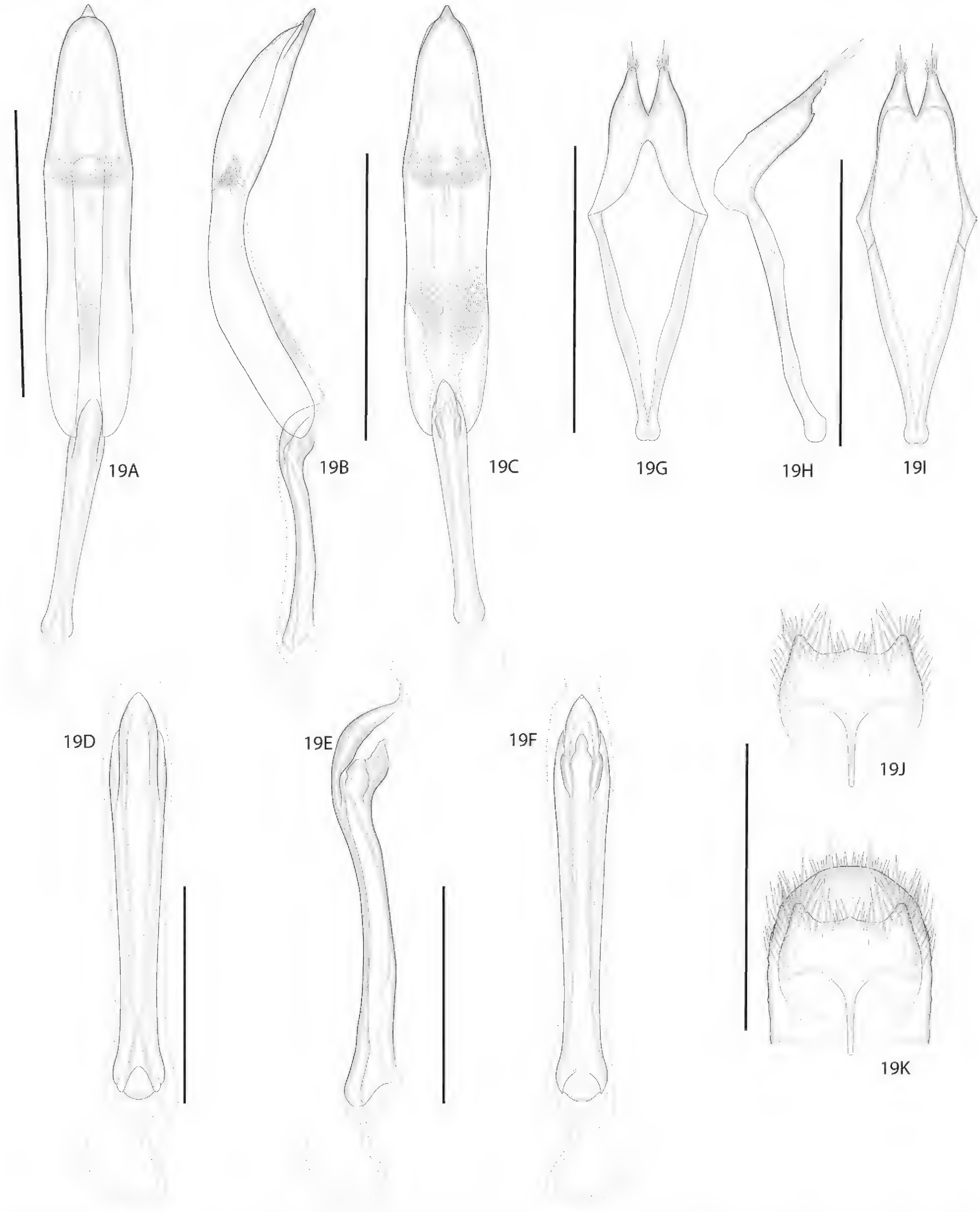


Figure 19. A–K. *Ceresium jimcopei* sp. nov. Holotype male. Genitalia. **A.** Median lobe with endophallus, dorsal view; **B.** Ditto, lateral; **C.** Ditto, ventral; **D.** Endophallus, apical process, dorsal view; **E.** Ditto, lateral; **F.** Ditto, ventral; **G.** Tegmen, dorsal view; **H.** Ditto, lateral; **I.** Ditto, ventral; **J.** 8th sternite, ventral view; **K.** Ditto, with 8th tergite in the background. Scale bars: 0.5 mm (**D–F**); 1 mm (**A–C, G–K**).

Endophallus–Apical process:

– The apical process of *C. jimcopei* sp. nov. is exceptional. An apical process in baculi-form has not been observed before, even in the tribe Callidiopini as a whole. It is also extraordinarily large in relation to the median lobe, the largest ever measured. It is noteworthy that the endophallus of *C. jimcopei* is so peculiar in morphology, while many of its external characteristics are comparable to those of known species.

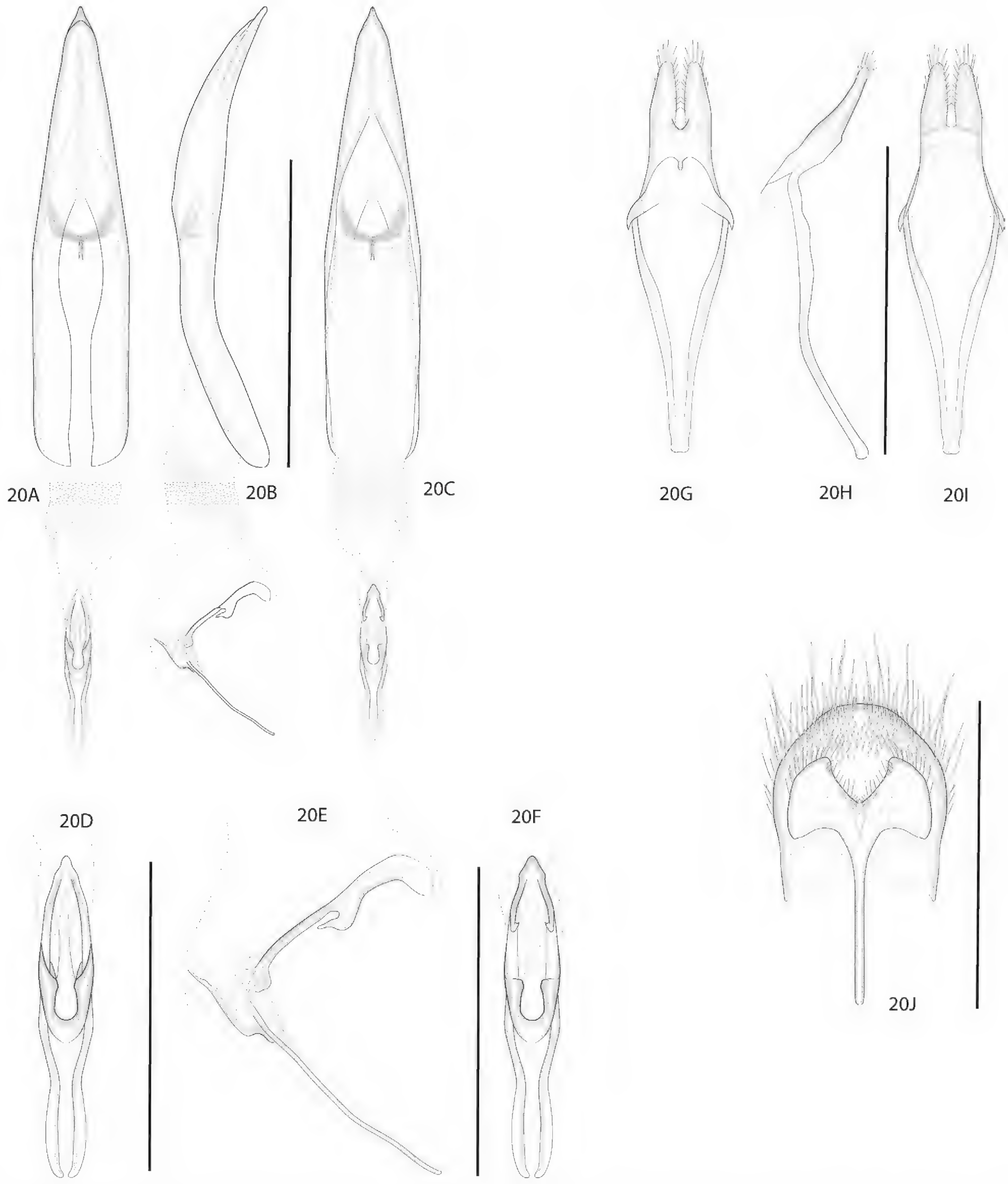


Figure 20. A–J. *Ceresium huedepohli mindanao* subsp. nov. Holotype male. Genitalia. **A.** Median lobe with endophallus, dorsal view; **B.** Ditto, lateral; **C.** Ditto, ventral; **D.** Endophallus, apical process, dorsal view; **E.** Ditto, lateral; **F.** Ditto, ventral; **G.** Tegmen, dorsal view; **H.** Ditto, lateral; **I.** Ditto, ventral; **J.** 8th sternite, with 8th tergite in the background, ventral view. Scale bars: 0.5 mm (**D–F**); 1 mm (**A–C, G–J**).

The endophallus of *C. huedepohli* and its subspecies is no less remarkable. Its apical process is very narrow, thin, sharply curved, fundamentally differing from those of other species. In contrast, the external characteristics of this species are at least partly comparable to those of the sympatric *C. balkei* Yokoi, 2019, or of *C. gracilipipenne* Yokoi, 2021, from the Solomon Islands. The observation can be interpreted either as an additional evidence of the extreme diversity of *Ceresium* species in terms of the endophallus, or as an indication of the unique status of this species in taxonomy. Examinations of additional species are necessary.

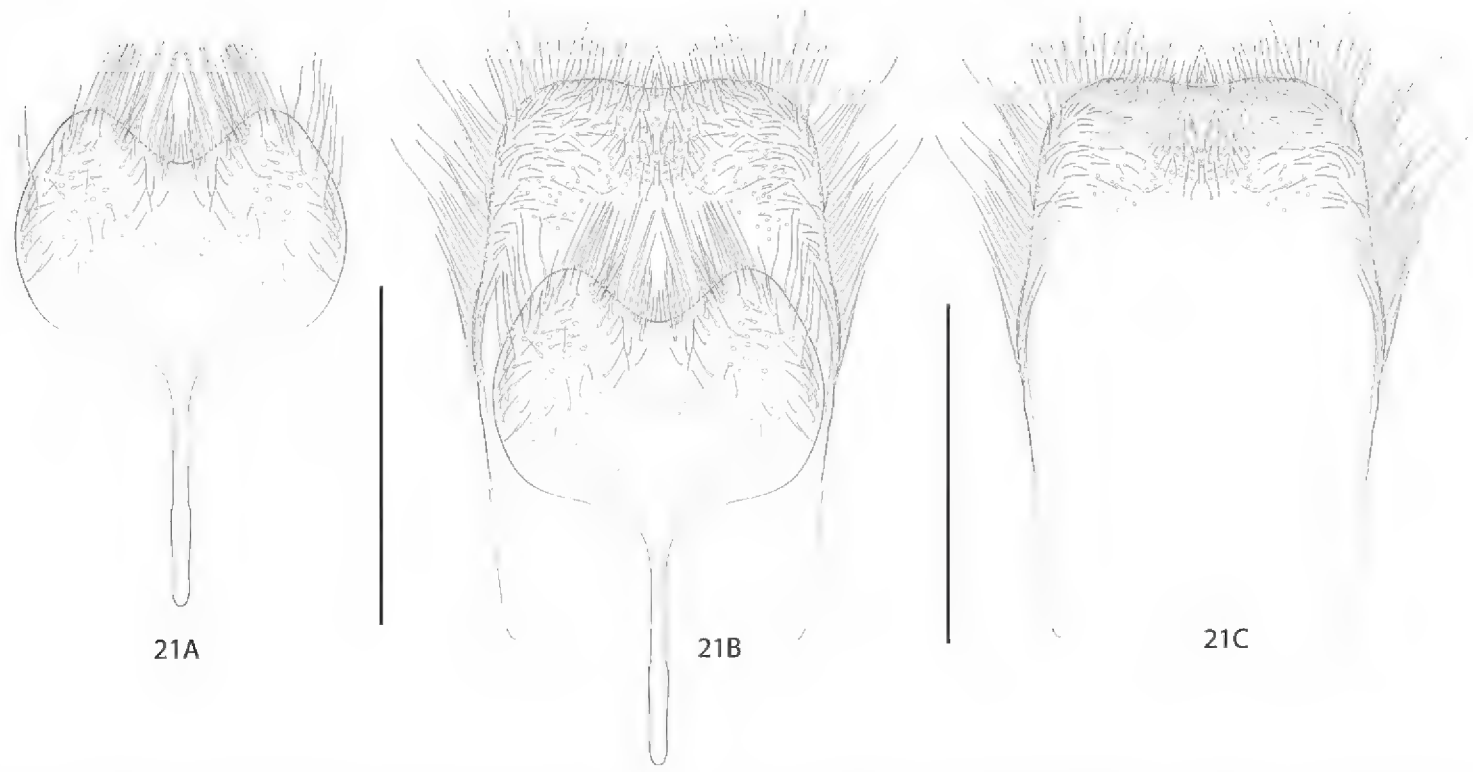


Figure 21. A–C. *Ceresium nigricolle* sp. nov. Holotype male. Genitalia (part). **A.** 8th sternite, ventral view; **B.** ditto, with 8th tergite in the background; **C.** 8th tergite, ventral view. Scale bars: 1 mm.

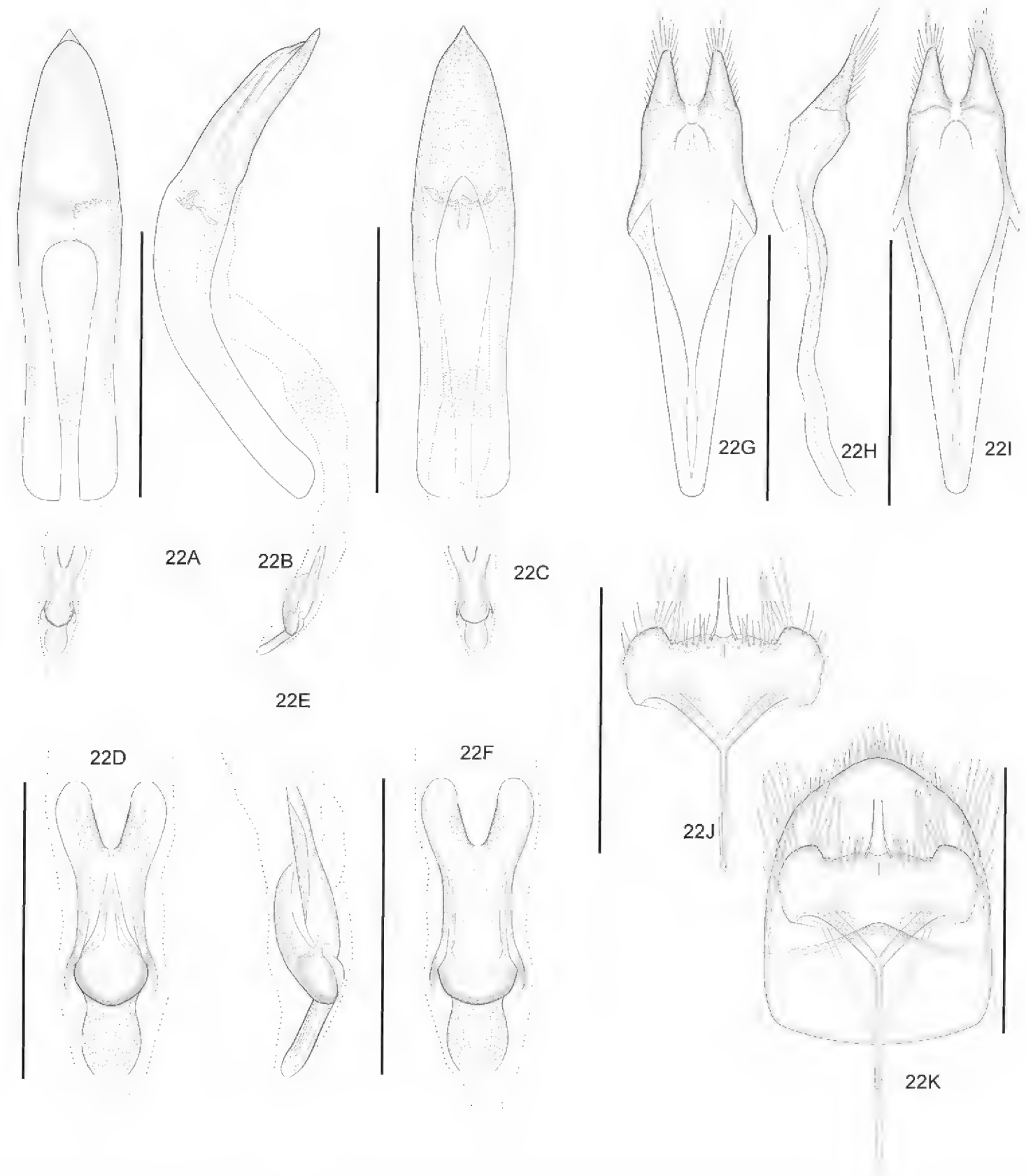


Figure 22. A–K. *Ceresium aethiops* Newman. Male from Luzon. Genitalia. **A.** Median lobe with endophallus, dorsal view; **B.** Ditto, lateral; **C.** Ditto, ventral; **D.** Endophallus, apical process, dorsal view; **E.** Ditto, lateral; **F.** Ditto, ventral; **G.** Tegmen, dorsal view; **H.** Ditto, lateral; **I.** Ditto, ventral; **J.** 8th sternite, ventral view; **K.** Ditto, with 8th and 9th tergite in the background and partly sclerotized membrane in the foreground. Scale bars: 0.5 mm (**D–F**); 1 mm (**A–C, G–K**).

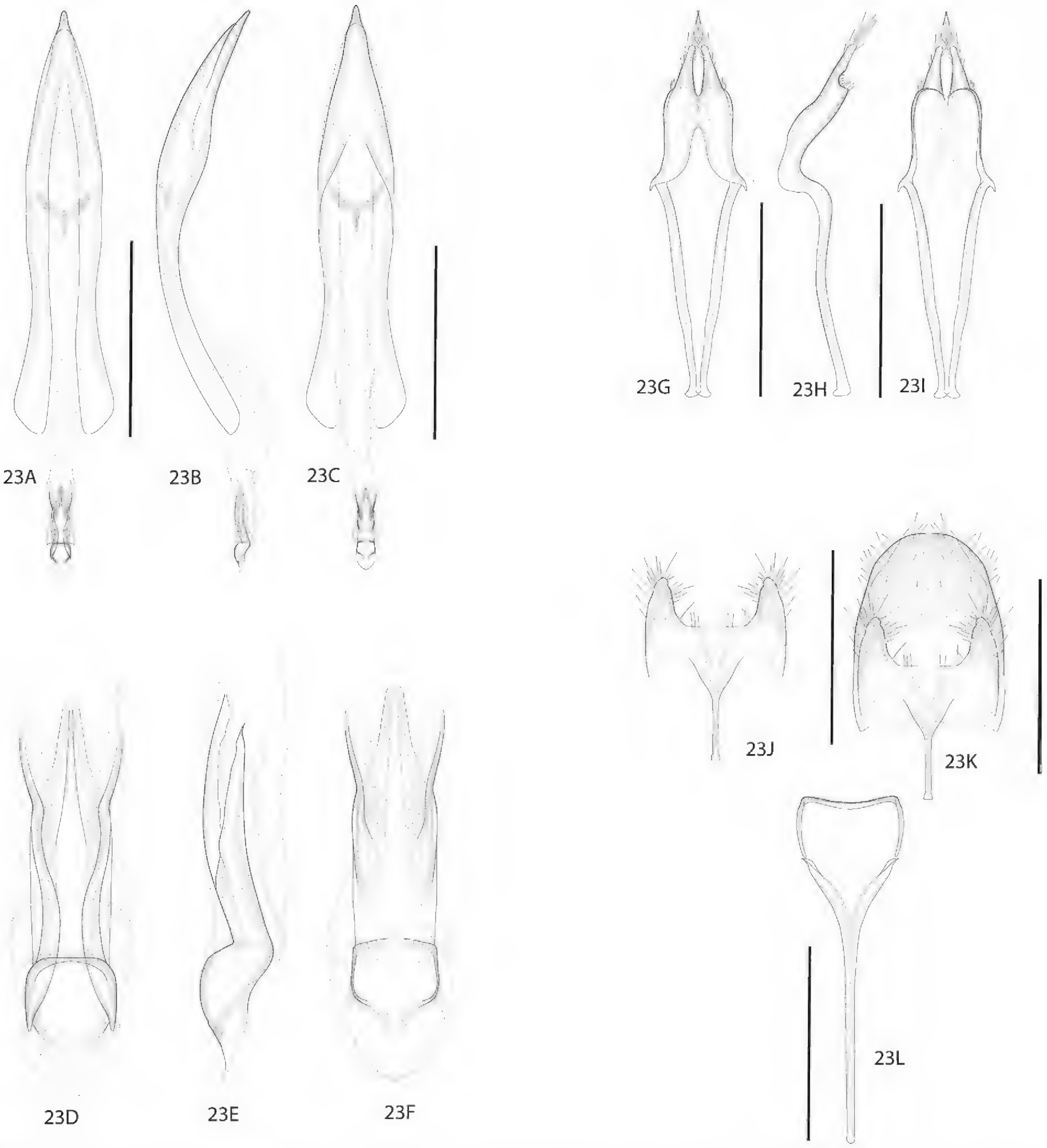


Figure 23. A–L. *Ceresium lingafelteri* Vives. Male from Mindanao (New record). Genitalia. **A.** Median lobe with endophallus, dorsal view; **B.** Ditto, lateral; **C.** Ditto, ventral; **D.** Endophallus, apical process, dorsal view; **E.** Ditto, lateral; **F.** Ditto, ventral; **G.** Tegmen, dorsal view; **H.** Ditto, lateral; **I.** Ditto, ventral; **J.** 8th sternite, ventral view; **K.** Ditto, with 8th tergite in the background; **L.** 9th Sternite (spicum gastrale) and tergite, dorsal view. Scale bars: 0.5 mm (**D–F**); 1 mm (**A–C, G–L**).

– In general, the apical process of the endophallus is distinctive and characteristic for each *Ceresium* species studied. In a few rare cases, however, affinity in morphology can be identified. Resemblance between *C. holzschuhi* sp. nov. and *C. sugiartoi* is such an example. The processes of both species are in turn comparable to those of *Examnes* species. Further, the apical process of *C. aethiops* from the Philippines is analogous in architecture to that of *C. ikuoyokoii* Yokoi, 2019, from Sumatra. (See corresponding Comparative notes). Nevertheless, the compared species differ in other aspects as external characteristics or 8th sternite.

– So far as the hitherto examined *Ceresium* species are concerned, morphology of the endophallus is not correlated with morphologies of other essential characteristics. As described above, external characteristics of two species can be comparable in one way or another, while their endophalli are fundamentally different, and vice versa. It is possible that the endophalli were independently diversified in *Ceresium*, decoupled from the evolution of other essential characteristics. Further investigation is necessary to answer this question. Only 1/6 of the 180 *Ceresium* species have been so far examined regarding genitalia; the endophallus in particular.

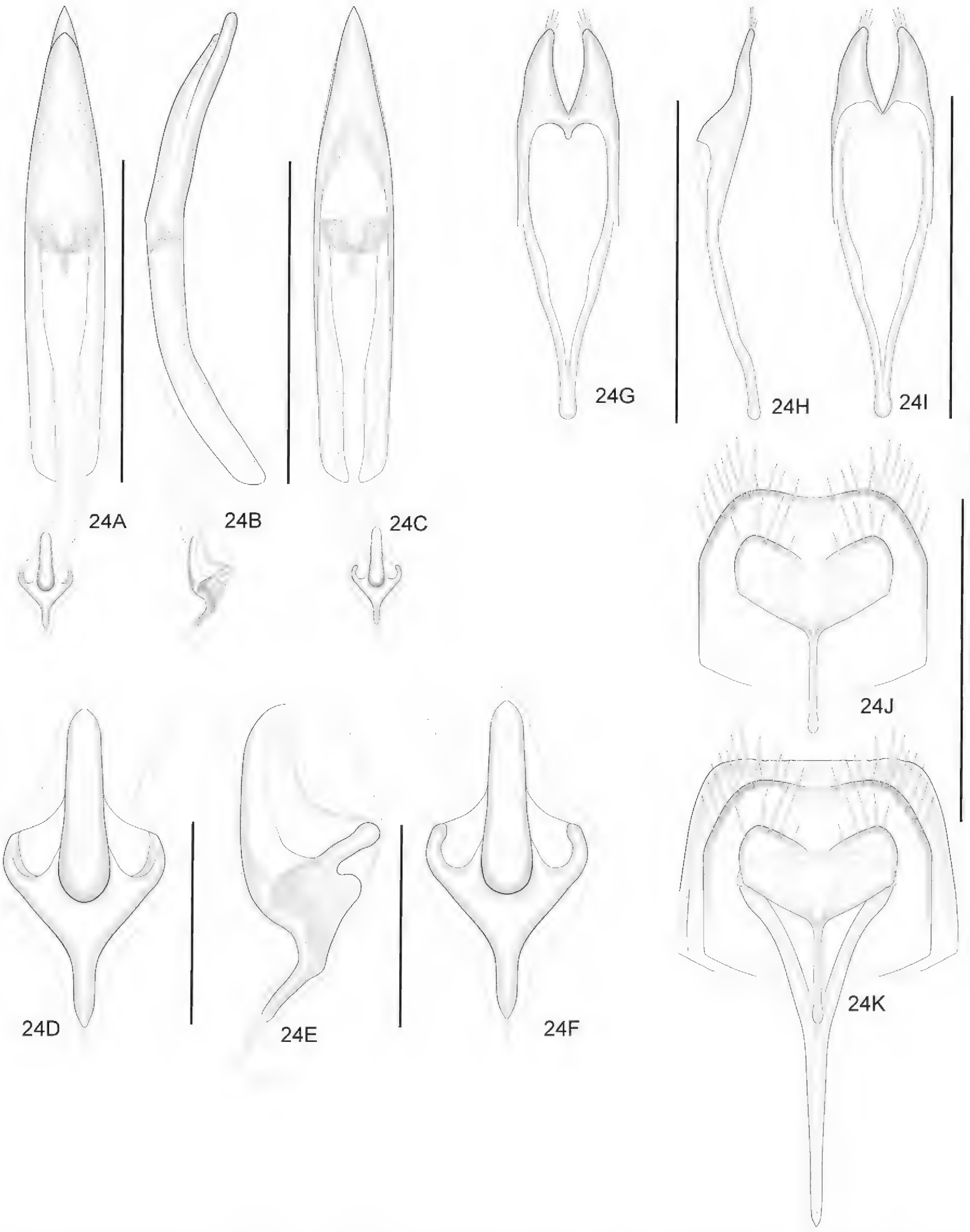


Figure 24. A–K. *Ceresium longicorne* PIC. Male from Palawan, Philippines. (New record). Genitalia. **A.** Median lobe with endophallus, dorsal view; **B.** Ditto, lateral; **C.** Ditto, ventral; **D.** Endophallus, apical process, dorsal view; **E.** Ditto, lateral; **F.** Ditto, ventral; **G.** Tegmen, dorsal view; **H.** Ditto, lateral; **I.** Ditto, ventral; **J.** 8th sternite with 8th tergite in the background; **K.** Ditto with 9th sternite (spicum gastrale), with 7th tergite in the background. Scale bars: 0.5 mm (**D–F**); 1 mm (**A–C, G–K**).

Surface of endophallic tube

Endophallic tubes of a few *Ceresium* species from the Philippines are scaly on the surface. The scales are diminutive or obtuse in most cases. Those of *C. jimcopei* sp. nov. are, however, distinct, large, dense, even partly sub-reticulate. This type of endophallic tube was observed in a few Austro-Asian species as *Ceresium pulekerai* Yokoi or *Ceresium furutaraui* Yokoi from the Solomon Islands (Yokoi 2021a), but so far not in the Oriental species.

Sternite and tergite

New types of 8th sternites and tergites have been observed. In particular, 8th sternite of *C. elongatipenne* sp. nov. is finely structured with a short, multi-emarginated blade, while the

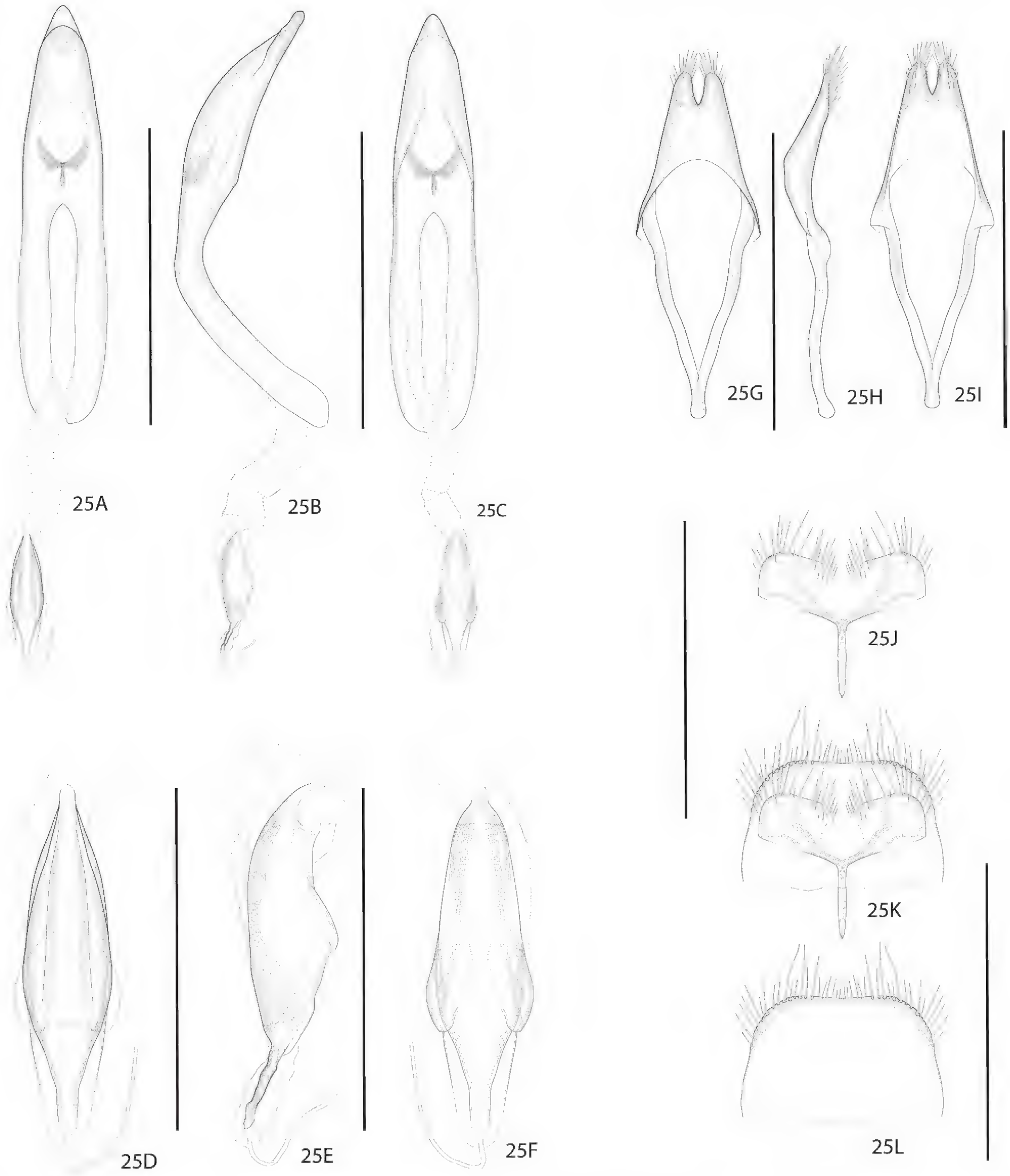


Figure 25. A–L. *Examnes lumawigi subrugosus* subsp. nov. Holotype male. Genitalia. **A.** Median lobe with endophallus, dorsal view; **B.** Ditto, lateral; **C.** Ditto, ventral; **D.** Endophallus, apical process, dorsal view; **E.** Ditto, lateral; **F.** Ditto, ventral; **G.** Tegmen, dorsal view; **H.** Ditto, lateral; **I.** Ditto, ventral; **J.** 8th sternite, ventral view; **K.** Ditto, with 8th tergite in the background; **L.** 8th tergite, ventral view. Scale bars: 0.5 mm (**D–F**); 1 mm (**A–C, G–L**).

tergite is extraordinarily elongated. No less noteworthy is the distinctly setose apical elevation on the 8th sternite of *C. holzschuhi* sp. nov., and the unusually setose 8th sternite and tergite of *C. nigricolle* sp. nov. In turn, peduncle of the 9th tergite is disproportionately elongated in *C. lingafelteri*.

So far, no correlation of these external genital parts was observed, either to the diverse endophalli or to other essential characteristics.

Median lobe and tegmen

The median lobe and tegmen of *C. lingafelteri* are atypical (See the Description and Comparative notes). Above all, both clusters of bushy lateral setae on the lobe of parameres are peculiar, a new observation in the Callidiopini.

Figure 26. A–F. *Examnes kawakamii* Yokoi, Makihara & Noerdjito. Male from Basilan, Philippines. (New record). Genitalia. **A.** Median lobe with endophallus, lateral view; **B.** Ditto, ventral; **C.** Endophallus, apical process, dorsal view; **D.** Ditto, lateral; **E.** Ditto, ventral; **F.** 8th sternite and tergite, ventral view. Scale bars: 0.5 mm (**C–E**); 1 mm (**A, B, F**).

Male genitalia–*Examnes*

Male genitalia of one new subspecies and 2 known species from the Philippines are described above. Altogether, five *Examnes* species have now been examined as to male genitalia (Yokoi 2015; Yokoi et al. 2016, 2019). Endophalli of these *Examnes* species, including those of the nominotypical *E. philippensis*, are each provided with a complex, sclerotized apical process, similar to those of *Ceresium* species. The processes of *Examnes* species are, however, more homogenous. They are sub-monolithic, thick in profile, furnished with: a) a prominent, horn-shaped dorsal projection; b) a pair of lateral extensions; c) a spatulate base; d) often an additional membranous attachment (See Comparative notes for *E. Philippensis*). As all the examined species of *Examnes* share this type of endophallus, a correlation between the genitalia and the essential external characteristics, namely those of the *Examnes*, is recognized for the species examined.

Although genitalia of *Examnes* are relatively homogenous, they do include a few interesting deviations. The disproportionately large appendage of the apical process of the

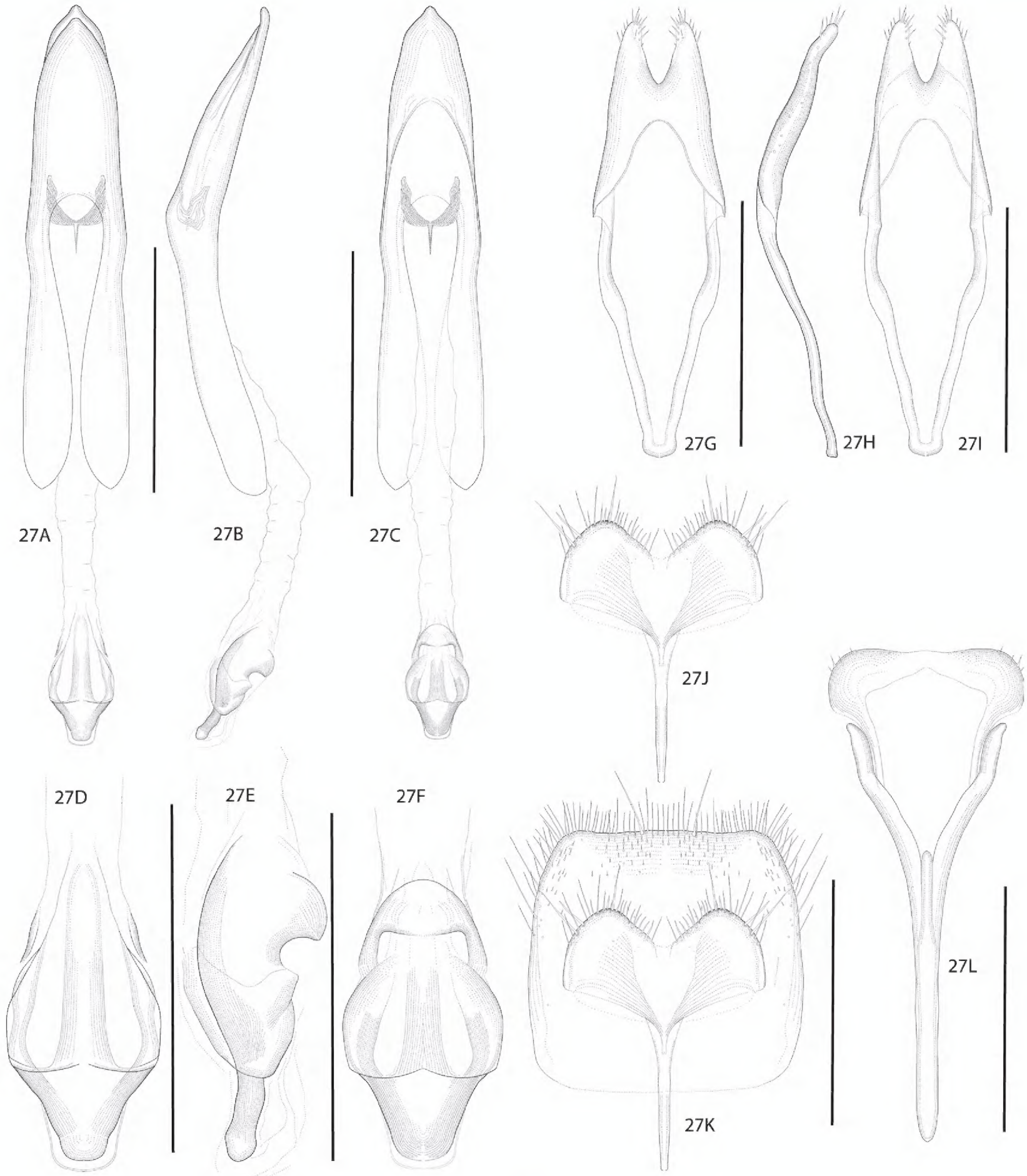
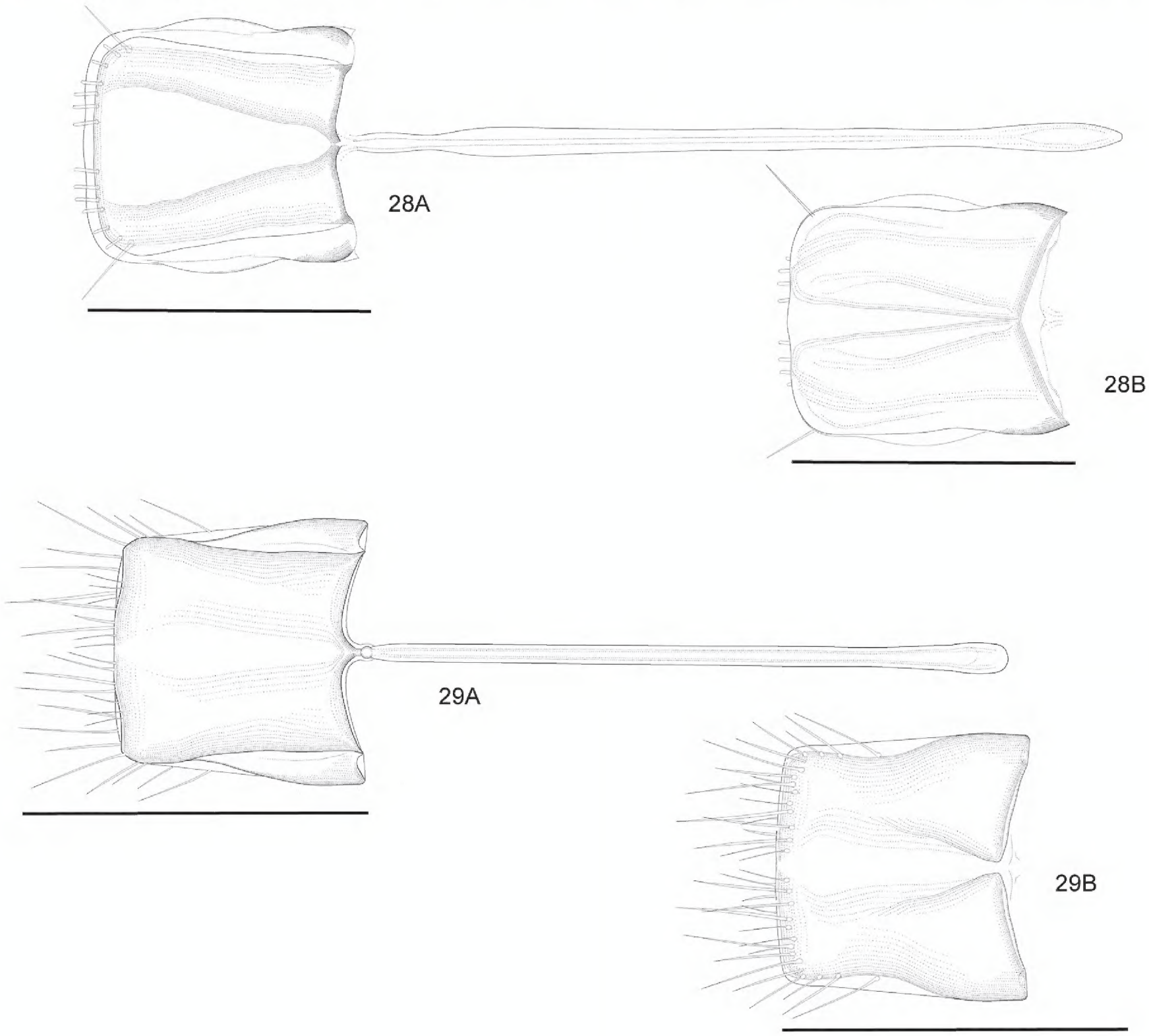


Figure 27. A–L. *Examnes philippensis* Newman. Male from Basilan, Philippines (New record). Genitalia. **A.** Median lobe with endophallus, dorsal view; **B.** Ditto, lateral; **C.** Ditto, ventral; **D.** Endophallus, apical process, dorsal view; **E.** Ditto, lateral; **F.** Ditto, ventral; **G.** Tegmen, dorsal view; **H.** Ditto, lateral; **I.** Ditto, ventral; **J.** 8th sternite, ventral view; **K.** Ditto, with 8th tergite in the background; **L.** 9th sternite (spicum gastrale) and tergite, ventral view. Scale bars: 0.5 mm (**D–F**); 1 mm (**A–C, G–L**).

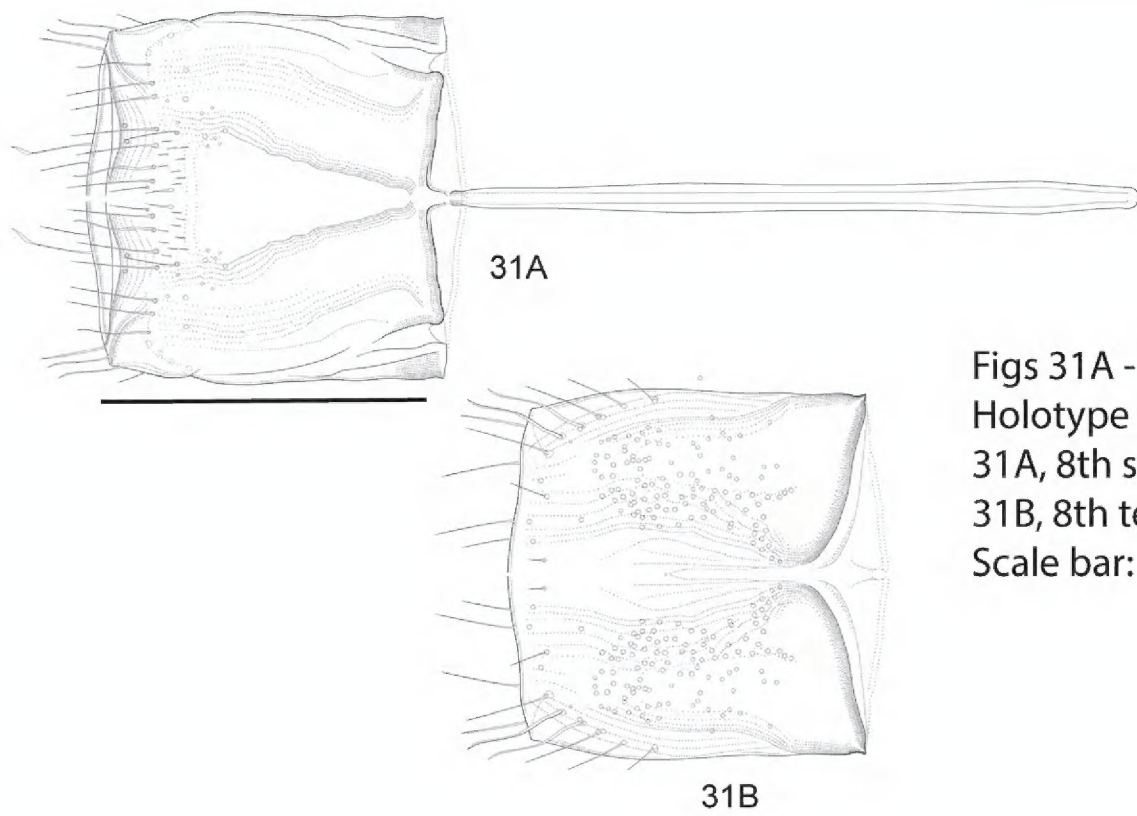
endophallus as well as the adjacent perforation, observed in *E. kawakamii*, is such an example. Likewise noteworthy are the apical setae on the peculiar structure of the 9th tergite of *E. philippensis*. The function of these setae and their taxonomical significance should further be investigated.

Ceresium–Examnes

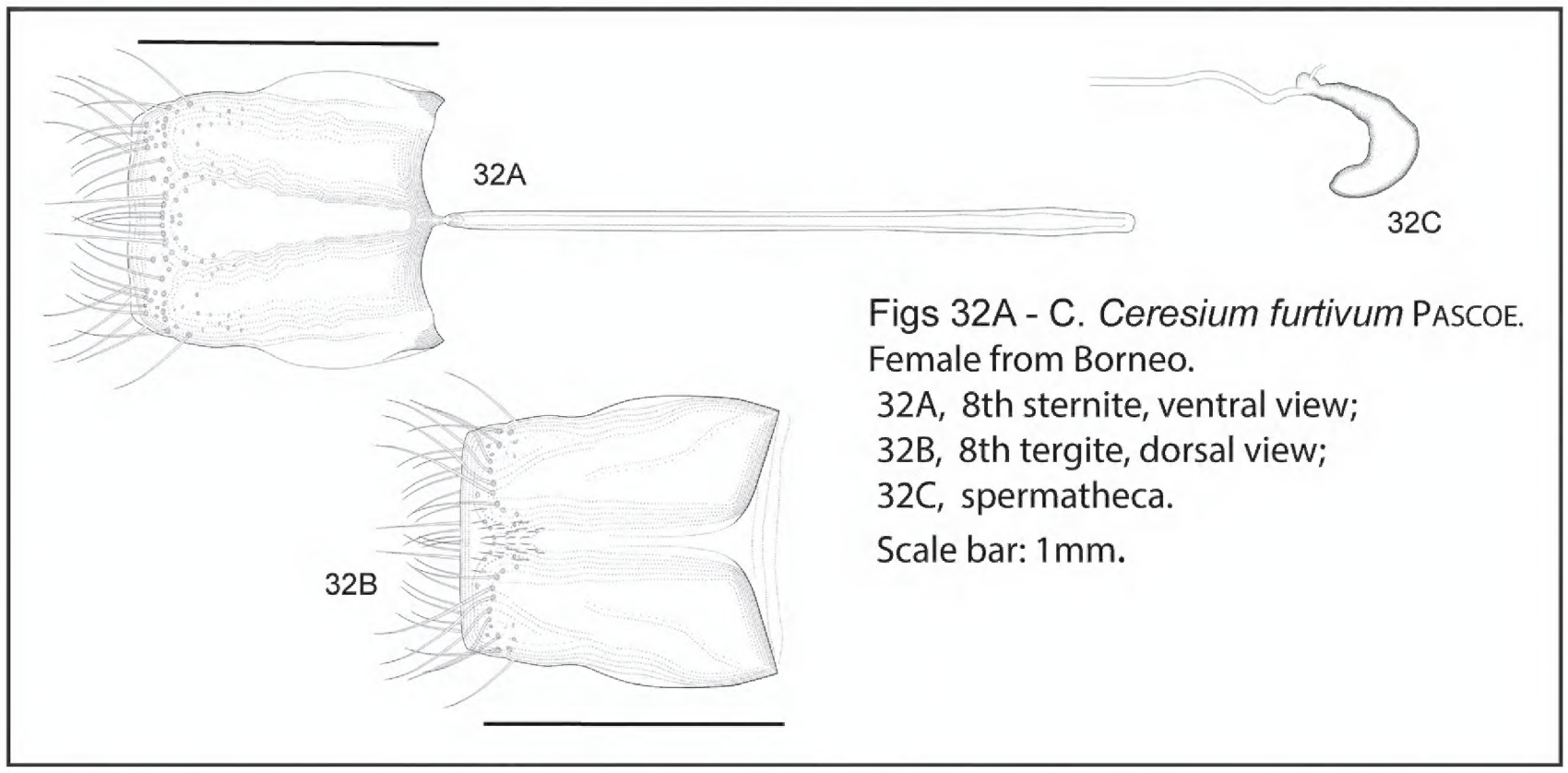
There are a few ambiguities as to the classification of *Examnes* species. The distinction between *Examnes* and *Ceresium*, as originally described (Pascoe 1869), is not universally valid for the later described species. There are species with external characters of both genera (Yokoi 2019, 2021a; Yokoi et al. 2019). As to genitalia, in particular the endophallus, *Examnes* is a rather homogenous genus. However, similar types of endophalli as in *Examnes* are occasionally observed in *Ceresium*. The above described case of *C. holzschuhi* sp. nov. is such an example. A few *Ceresium* species thus share a common characteristic in genitalia with *Examnes* species. This could be an additional indication for the interrelationship of both genera. In view of the extreme diversity of *Ceresium* in genitalia and external characteristics, *Examnes* could be interpreted either as a grouping within *Ceresium*, or a closely affiliated taxon. This question should be answered



Figures 28–30. 28A, B. *Ceresium elongatipenne* sp. nov. Paratype female. **28A.** 8th sternite, ventral view; **28B.** 8th tergite, dorsal view. **29A, B.** *Ceresium quinquemaculatum* sp. nov. Holotype female. **29A.** 8th sternite, ventral view; **29B.** 8th tergite, dorsal view. **30A–C.** *Ceresium striatocolle* Holzschuh. Female from Borneo. **30A.** 8th sternite, ventral view; **30B.** 8th tergite, dorsal view; **30C.** Spermatheca. Scale bars: 1 mm (**28A, B; 29A, B; 30A–C**).



Figs 31A - B. *Ceresium crassum* spec. nov.
Holotype female.
31A, 8th sternite, ventral view;
31B, 8th tergite, dorsal view.
Scale bar: 1mm.



Figs 32A - C. *Ceresium furtivum* PASCOE.
Female from Borneo.
32A, 8th sternite, ventral view;
32B, 8th tergite, dorsal view;
32C, spermatheca.
Scale bar: 1mm.

Figures 31, 32. 31A, B. *Ceresium crassum* sp. nov. Holotype female. **31A.** 8th sternite, ventral view; **31B.** 8th tergite, dorsal view. **32A–C.** *Ceresium furtivum* Pascoe. Female from Borneo. **32A.** 8th sternite, ventral view; **32B.** 8th tergite, dorsal view; **32C.** Spermatheca. Scale bars: 1 mm (**31A, B; 32A–C**).

through further investigations involving more species and developing cladistic analysis.

In any case, types of endophalli should be duly considered as an additional indicator for classification of species in question. In fact, as indicated in the corresponding comparative notes above, *Ceresium longicorne* shares not only a few essential external characters but also a similar type of male genitalia with *Examnes* species. The genitalia of *Ceresium immite* have not yet been examined but at least its external characters are likewise comparable. In view of these affinities, both *C. longicorne* and *C. immite* could be better placed in *Examnes* than in *Ceresium*. In this publication, however, and until additional studies are performed, both *C. longicorne* and *C. immite* are treated as members of *Ceresium*. The above question as to the taxonomic position of the genera Ceresium and *Examnes* should be first clarified before any generic synonymies are published.

Female genitalia–*Ceresium*

The female genitalia of five species were examined. Deviations were observed in the structure of the 8th sternites and tergites. They differ in the form of the blades, the relative length of the peduncle (struts) and the apical setae. The 8th sternite and tergite of *Ceresium crassum* sp. nov., apically thickened, is noteworthy.

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